





CHARLES WARNE, F.S.A.

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ZW.

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Hon. Secretary.

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Members are reminded that payment of the current year's subscription (10s.) entitles them to the immediate receipt of the Vol. of "Proceedings" or other publications for the year; also that payment of arrears entitles to previous volumes, issued in those years for which the arrears are due.

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Surplus Copies of former "Proceedings" (vols. i.—viii.) at an average rate of 7s. 6d. a volume, and of "Spiders of Dorset" (2 vols. 25s.), are in the Treasurer's hands for disposal for the benefit of the Club's funds.

Any Member joining the Club and paying his subscription in a year for which no volume may be issued is entitled to a copy of that last previously issued.

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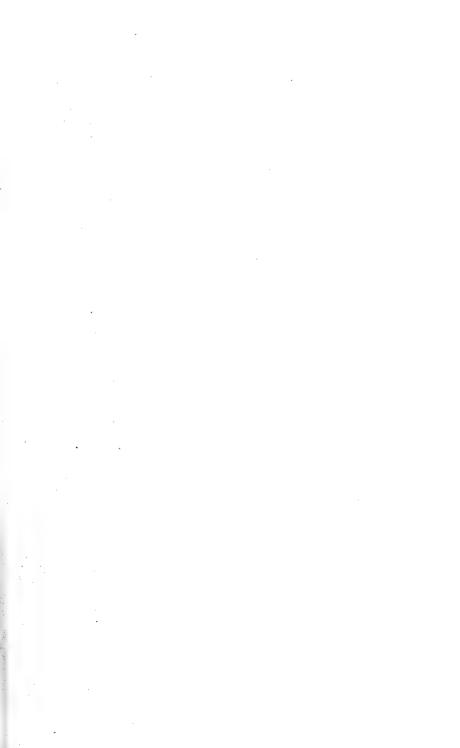
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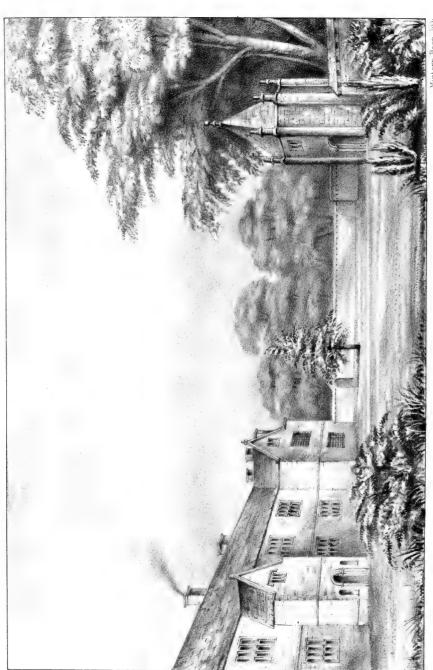
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POKESWELL HOUSE, DORSET.



In Memoriam

C. WARNE, Esq., F.S.A.

Since our last annual meeting the Club has sustained a heavy loss in the death of Mr. Warne, one of its most distinguished Honorary Members. It is felt that a memorial notice of this great antiquary must of necessity form a feature in our next volume. The honour of writing it has fallen on me. This honour is one too gratifying to decline, yet one of which I cannot but feel unworthy, considering that my personal acquaintance with Mr. Warne was, to my great regret, but small. However, thanks to the kind and able help of his son, Mr. C. H. Warne, I hope to be able to give a biographical sketch which shall be at least accurate.

Mr. C. Warne, youngest son of Mr. Joseph Kingston Warne, was born at Moreton, Dorset, on July 6th, 1801. He was educated at schools at Weymouth and Wimborne. The family originally came from Ringwood, Hants.

Soon after Mr. Warne's birth his parents removed to the fine old manor house of Pokeswell. Here his father died in 1823 and his mother in 1838. After her death Mr. Warne moved to Milborne St. Andrew's. About 1852 he left Dorset, but he kept up a warm regard for the county and its people to the last day of his life. At first he lived in London, but ill health induced him to migrate to Ewell, Surrey. From this place he went to Brighton for the sake of more bracing air, and at Brighton he spent the rest of his life. He died there on Easter Monday, 1887. Calmly and peacefully he yielded up his soul to God, who gave it, and died in

sure and certain hope of the endless Eastertide on high. He lies in Woking Cemetery, and it is a fitting monument that marks the grave. He himself chose the spot, and caused to be placed there a massive, unhewn, lichen-covered Serpentine stone from the Lizard. Round this rock gravestone is raised a green bank, the two recalling the menhirs and valla, which were his study for a lifetime.

In 1847 Mr. Warne married Miss Anne Holland, daughter of Mr. J. Holland, of Clapham Common. She died in 1859, and her loss was keenly felt to the last by her husband.

Mr. Warne dearly loved his native Dorset (as we have said), and in early life began to be deeply interested in the then little studied archæology of the county. Both at Pokeswell and at Milbourne St. Andrews he spent much time in exploring Keltic, Roman, and Saxon antiquities of various kinds. In the neighbourhood of those two places, and in several other parts of Dorset, he opened many barrows, as his fine book on the subject records. It is in connection with this kind of antiquity, and with camps and trackways, that he is best known as an archæologist in Dorset.



FROM A BARROW AT WINTERBORNE STEEPLETON. (This axe is now in the Dorset County Museum.)

But his interest in the past by no means stopped there. His fireside talk with his chosen friends was often of Dorset folk-lore and folk-speech—of Dorset churches, old houses, and old market-places—of Dorset manners and customs of long ago. Again, Mr. Warne was a numismatist to an extent for which some of us in Dorset hardly gave him credit enough, I think. True it is that his treatise in "Ancient Dorset" on the early mediæval mints of the

county shows that his interest and knowledge in this branch of archæology were great. But I do not think that the general estimate of his attainments therein, and of his long-continued collecting of coins, is nearly high enough. In enlarging his knowledge of Saxon coins he went far afield. Considering the vast drain of money from England in Saxon times, caused by actual raids and by the Danegeld, Mr. WARNE bethought him that the museums of Northern Europe must be rich in our coins of that epoch. He found this to be the case, and he summed up no less than 10,722 Saxon coins as existing in various Danish and other northern museums. Among these were several Dorset types, before unknown to antiquaries. From such and other sources he gradually gathered a fine collection of Saxon coins. Another feature of his cabinets is a probably unequalled assemblage of coins of Carausius. Moreover, he collected a great display of antiquities of other and various "Ancient Dorset," and, now of late, the "Warne Collection," in the Dorset Museum, make us in some degree aware of this. But apart from that collection, which was long deposited in the Brighton Museum, he possessed a great number and great variety of antiques, home and foreign, in his house, which is half furnished with old oak, half hung with old tapestry.

With such antiquarian tastes, it is no wonder that he made a number of antiquarian friends, both in and out of Dorset. Of these many have passed away, such as Mr. Hall, Mr. Sydenham, Mr. Shipp, and last, not least, the Rev. W. Barnes. Two of his chief allies survive him, the veteran antiquaries, Mr. Roach Smith and Dr. Smart. The latter gave Mr. Warne most valuable help by contributing an admirable ethnological essay and other archæological notices to "Ancient Dorset." Again, Mr. Warne was much encouraged in his antiquarianism by his cousin, Miss Warne, of Yeovil, daughter of Dr. Warne, physician to King George III., when at Weymouth. This lady possessed not only keen taste for conchology, geology, botany, and archæology, but also matchless energy in the practical pursuit of knowledge. Entirely alone, she visited most of Europe and parts of Asia, Africa, and

America. This last continent she traversed when she was of the age of eighty. In all her tours she kept up a correspondence with Mr. Warne, and she enriched his collection of antiquities greatly.

In 1844 Mr. Warne became a member of the British Archæological Association, and in 1856 he was elected a Fellow of the Society of Antiquaries. At the meetings of both these societies he was long a constant attendant. To the Archæologia (vol. xxxix., 1861) he contributed a most important paper on Ibernium. Again, vol. xli., 1867, contains an essay by him on Vespasian's first campaign in Britain. In 1869 he wrote in the Proceedings of the Society of Antiquaries on the so-called Belgic ditches of Dorset, and he contributed a paper on his exploration of the Roman Stone Street in Surrey. To the Journal of the British Archæological Association he also contributed frequently—e.g., on three barrows at Came, and on a small stencilled panel from Cheselborne Manor House. At the Winchester Congress of the Association in 1845 he read a paper on Dorset barrows. In the "Gentleman's Magazine" he wrote respecting the walls of Wareham.

Such are some of his isolated papers on archæology, especially that of his own Dorset. As to his books and his map, it is needless to do more than name them. Nor, indeed, is this the place for, nor am I capable of, a fitting critique on the works which have earned for him the title of the Dorset Antiquary. They are as follows:—

To this map "Dorsetshire," while complete in itself, serves as an index. The "Gentleman's Magazine," in a notice of this joint work, says that it is believed to be unique in conception.

Copies of all these are in the Dorset Museum, ex dono auctoris. We have there also, and given by him, a reprint of the paper on I bernium or Ibernio.

[&]quot;Dorsetshire: Its Vestiges, Celtic, &c." 1865.

[&]quot;Map of Ancient Dorset." 1865.

[&]quot;The Celtic Tumuli of Dorset." 1866.

[&]quot;Ancient Dorset." 1872.

Such, roughly set down, were the archæological studies, such the literary works, of a man of whom old Dorset may well be proud.

As I said, I cannot venture on any formal critique, yet I would say a word or so on one or two points. I need but to name Mr. WARNE'S great service to Dorset Archæology in his book on our Barrows, with its careful and most instructive sections, showing the successive burials. Then I would remind you of what seem to me his two great strokes in archæological discovery. In the first place look at Maiden Castle. I do not here refer to Mr. WARNE'S most able, but conjectural, and therefore controvertible, tracing of Vespasian's first campaign, as connected with Maiden Castle. But I call it a great discovery that Mr. WARNE detected, what no one had seen before, that the south side of that giant fastness is unfinished. When first I read this, some years ago, I would not But each time that I have since looked at those believe it. shallow southern ditches, with the small vallam on their inner edge, and the wide platform behind, it has seemed more clear to me that he was right. Secondly, I would remind you, but it must be only in a word, of his finding the site of the lost Ibernio of the Ravenna Itinerary. One of Sir R. C. Hoare's great hits was the discovery of Vindogladia on Gussage Down. Mr. Warne's quick eye, years after, saw in a ploughed field, on what had been Kingston Down, certain differences of hue in the soil. Not much to catch any common sight, but it was enough for Mr. WARNE. From careful study of Antonine's Itinerary he had become sure that a station must have been left out therein between Vindogladia and Durnovaria. In the Ravenna Itinerary he found Ibernio inserted. Kingston Down was, roughly, half-way, and here in the varied colour of the Kingston ploughed field he thought he saw signs of the forgotten Roman Station. On examining the dark patches of soil he found everything to confirm his idea. Afterwards, being unable to renew his personal researches there, he got his friend Mr. Shipp to explore the field. Many relics were found, which abundantly proved that a Roman station had existed there, It is now, I believe, accepted by all antiquaries as a fact that it was the lost Ibernio.

A few years ago the Dorset Museum acquired by a very advantageous exchange what is now one of its chief treasures, under the name of the "Warne Collection." In it are comprised many excellent antiques from Ireland, the Isle of Wight, Sardinia, and other more or less distant places. But it is the Dorset WARNE Collection which is here most valuable by far. In it there are a fine series of Keltic urns, almost every one of which is engraved in "Celtic Tumuli of Dorset;" also a long row of small vases and pateræ of Roman work from Jordan Hill, and a number of bronze objects, lance-heads, pins, &c., from the same place. In the middle of the large wall case, containing these things and a multitude more, is a little primæval-looking quaint incense burner of clay. This was much prized by Mr. WARNE. I must not, however, run on into writing a catalogue, for it behoves me at once to draw to an end. But I must not close without reminding you that it was Mr. WARNE who, supported by the Rev. W. Barnes and Mr. Roach Smith, rescued Maumbury Rings from the destruction threatened by the Great Western Railway Company. preservation of the most perfect amphitheatre in England had been his only service to archæology he would have won the gratitude of all antiquaries. I said at the outset that my personal acquaintance with Mr. Warne was small. So it was, to my great loss. While he was living in Dorset I for many years lived out of it. But a visit of an hour or two was enough to reveal to any one, in part at least, what a wealth of intelligence, quiet energy, good nature, and courteous urbanity lived and moved, too, in that excellent man. And what a fund of anecdote he seemed to possess! Never shall I forget how, in spite of rheumatism, and in spite of my entreaty that he would spare himself, he insisted in toiling upstairs to show me a fine landscape tapestry; and, in front of it, he told me how, wher archæology had first began to get possession of him, it had struck him that eleven pieces of fabric, long used in Pokeswell House as bedroom rugs and mats, were nothing more nor less than

the disjecta membra of a piece of tapestry—how he sorted and fitted them, out on the lawn—how they were scoured and sewn together; and astonishingly good the resuscitated tapestry looked. Then he showed me a glorious oak cabinet which was condemned by cottagers at Milborne to be demolished and burnt. Fearing, however, that it would be rather a stiff business to smash it, Betty was quite glad for Mr. Warne to cart the whole thing away. Her astonishment at afterwards receiving a new nineteenth century mahogany sideboard in recompense may be partly conceived, but is wholly unutterable in words.

Of a good and talented Dorset man my picture is now painted. A poor picture it is, but his fame in no way depends on my pourtraying. As long as any account is made of archæology so long will Warne be an honoured name on the lips, in the heart, of every lover of the relics of the olden time.

H. J. MOULE.

January 27, 1888.



The Proceedings

OF THE

Porset Antural History and Antiquarian Hield Club

DURING THE SEASON OF 1887.

By M. G. STUART, M.A., F.G.S.

The work of the Society during 1887 has comprised a meeting at Dorchester on June 10th, a two days' meeting at Chard on July 12th and 13th, at Whitchurch Canonicorum on August 15th, at Poole on September 13th, a committee meeting at Bloxworth Rectory on December 12th, and a winter meeting in the Dorchester Museum on January 27th. Some 25 papers have been read before the Society during the year, and 21 new members have been elected, but several have been lost either by death or removal from the county. Amongst the former is Mr. C. Warne, the eminent antiquarian, a memoir of whom, from the pen of Mr. H. Moule, is included in the present volume. The county generally have mourned the loss of the Right Honourable J. Floyer, F.G.S., of Stafford, and late in December the sudden death of the Rev. W. Kendall has deprived us of one of our active supporters.

By the appointment early in the year of two Assistant Honorary Secretaries the executive of the Society has been enlarged, and its organization placed on a sounder basis—the Assistant Secretaries being J. S. Udal, Esq., of the Manor House, Symondsbury, and Eustace Bankes, Esq., the Rectory, Corfe Castle.

A new field of work has been opened by the recommendation of General Pitt Rivers, H.M. Inspector of Ancient Monuments—that the Field Club should undertake to collect information and to draw up a report on the prehistoric remains of Dorset, to facilitate which a circular letter and schedule have been drawn out by the committee, which have been forwarded to the incumbents of all parishes in the county requesting them to make a return of the prehistoric remains in their respective parishes; also to collect information on the flowering of plants, migration of birds, and appearances of insects and their relative abundance and scarcity; together with statistics of rainfall. It is proposed to issue schedules to

members and friends for recording their observations on these phenomena, to be returned to head-quarters, where they will be arranged and tabulated meanwhile; lest time should be lost, the Phenological Tables of the Royal Meteorological Society for recording observations of this character have been issued by way of experiment, and it is hoped that much interesting information will result.

The FIRST MEETING of the year was held, as usual, in the County Museum at Dorchester on Friday, June 10th, and was attended by not more than some 25 members and friends. The Treasurer, the Rev. O. P. Cambridge, presented the financial report. From the income of the past year the previous year's debt of £11 12s. 6d. had been paid, and, in addition, the cost of publishing Vol. vii. of the "Proceedings," the repairs sanctioned for Preston Bridge, and the binding of the surplus copies of the Spiders of Dorset had been defrayed. A balance of £24 3s. 3d. stood in their favour, the only outstanding liability being one of £8. Thus the Club possessed a sufficient prospective income for meeting the expenses of Volume viii, of their "Proceedings" during the present year. members was equally satisfactory. The Club had 187 names standing on their books as compared with 182 last year. During the year they had lost by death or resignation 17 members, and had elected 22, shewing a gain of five. The Treasurer's report was adopted.

The President, Treasurer, and Secretary were duly proposed, seconded, and elected for office during the ensuing year. Two Assistant Honorary Secretaries, J. S. Udal, Esq., and Eustace Bankes, Esq., were also proposed and elected for more effectually carrying out the arrangements in the distant parts of the county. The programme for the year and the sites for meetings during the summer months were then discussed and determined upon.

The subjects recommended for local investigation by the British Association for the Advancement of Science were next discussed. From these eight had been selected and printed on the programme for the day as particularly applicable to Dorsetshire These were—1. The Occurrence and Ravages of Injurious Insects. 2. The Investigation of British Barrows and other Prehistoric Remains. 3. Occurrence and Distribution of Erratic Blocks. 4. Appearance, Position, and Direction of Luminous Meteors. 5. Systematic Observations of Local Tidals and Magnetic Phenomena. 6. Rate of Erosion of Sea Coasts and the Influence of the Artificial Abstraction of Shingle. 7. Circulation of Underground Waters in the Permeable Formations of England. 8. The Disappearance of Native Plants. The result of this discussion has been the circulation of schedules throughout the

county on two of the points above mentioned—viz., Prehistoric Monuments, and the Flowering of Plants and Appearance of Birds, Insects, &c.

Annual Report of the Curator of the County Museum, H. Moule, Esq., of additions to the collection during 1886. This, in the absence of Mr. Moule, was read by the Secretary. Amongst the specimens illustrative of the Natural History of the county were a tooth of Pliosaurus Grandis, presented by J. C. Mansel-Pleydell; a series of cubes of various Purbeck stones, presented by Mr. G. Burt, as the nucleus of a collection of the building stones of the county; a fine skin of a Royston Crow was presented by Mr. T. B. Groves, of Weymouth.

Several valuable additions had been made to the collection of Dorset Antiquities. Amongst them were a series of worked flints from Wool Barrow, presented by the Rev. O. P. Cambridge; a large collection of flints from the neighbourhood of Cranborne, presented by T. Wake Smart, M.D.; a fine kelt from Winterborne Thompson, presented by Mr. House; a collection of urns—Romano-British vases and various objects—from Jordan Hill and tumuli of the county, the property of the late Charles Warne, and added to the Warne collection already in the Museum; a fine bronze dagger and other objects from Boveridge, presented by Mr. Brouncker; an iron axe head from Bloxworth; a Roman vase from Alton Pancras; fragments from the encaustic tile pavement of Shaftesbury Abbey, presented by the Dowager Marchioness of Westminster; mediæval embroidery from Wool Church, lent by the Vicar and Churchwardens.

OF BOOKS RELATING TO DORSET the following additions had been made during the year:—Bibliothica Dorsetiensis, presented by the Rev. Nigel W. Gresley; Janson's Map of Dorset, 1629, presented by G. Troyte-Bullock, Esq.; Iter Britannica, Mr. T. B. Groves; Monumenta Historica Britannica, Mr. E. R. Pearce-Edgcumbe; An 18th Century Presentment of the Manor of Fordington, by Lieut.-General Henning, C.B.; The Lepidoptera of Dorset, by Mr. C. W. Dale.

Non-Dorset Natural History:—Foreign fossils, J. C. Mansel-Pleydell; Trilobites, Bohemia, by S. S. Buckman; Prehistoric Bones and Teeth, Wales, Canon Bankes; Norwegian Elk's Head, Colonel Hambro, M.P.

BOOKS PRESENTED TO THE LIBRARY, in addition to the above:—Picturesque Palestine, 4 vols.; Social Life in Egypt, 1 vol.; several volumes, in addition to his previous gift, by Mr. T. Galpin; Museum Catalogues, from the Trustees of the British Museum; Indian Botany, by Lieut.-Colonel Bingham; a facsimile of the 16th Century Grants of Arms, Rev. F. J. Colby; Life of Sir W. Fairbairn, Hon. and Rev. Spring Rice.

The President then read a paper describing the discovery of a Roman Road which had been found during the previous autumn, and which he

had succeeded in tracing from Badbury Rings to Ashmore, but on its ultimate destination he was still undecided. A discussion ensued, in which the Secretary described the course of the Roman Road, which followed the ridge of the Mendip Hills, starting at their western extremity at Weston-super-Mare and running eastwards to Old Sarum, whence it was supposed to have branched off towards the Hampshire coast opposite the Isle of Wight. Along the line of this road as it traversed the Mendip Hills there exists numerous camps and earthworks; the remains of the mining operations of the Romans in search of lead exist in the disused workings and heaps of cinders still visible in the neighbourhood, whilst pigs of metal, coins, and other remains have been discovered from time to Whether this road between Badbury and Ashmore had any connection with the road along the Mendips was a point which without further investigation could not be decided. The notice of this newly discovered Roman Road was brought forward again at the evening meeting held at Chard in July, when some interesting criticisms were given on the subject by the Rev. Prebendary Scarth, of Wrington, Somerset. The President's paper, with a map of the district, together with Prebendary Scarth's remarks, will be found in the present volume at p. 147.

Luncheon was provided at the King's Arms Hotel at two p.m. After luncheon a visit was paid to Bockhampton Heath for the purpose of examining some curious funnel-shaped pits which exist in the neighbourhood in considerable numbers. The largest and most interesting of these, called Culpepper's bowl (which, however, was too distant to be visited on this occasion), is more than 100 yards in diameter. In explanation the President said the sands in which the pits are sunk belong to the Lower Eocene series, and only a short distance intervened between them and the underlying chalk. The surface and atmospheric water charged with carbonic acid percolating through the non-calcareous sands would combine with the carbonate of lime of the chalk, which it would dissolve and remove, and thus produce a vacuum, into which eventually the sands above would subside. A depression of the surface would ensue in proportion to the amount of carbonate of lime removed by the solvent action of the water.

The Rev. C. R. Baskett, Rector of Stinsford, read a paper, prepared by Mr. H. Moule, of Dorchester, on a stone which had been unearthed on Bockhampton Heath, and which was evidently part of an old cross of Ham Hill stone of 14th or 15th Century date. In the course of the paper the writer noticed two other stones in Stinsford parish—one at the top of Stinsford Hill, called Stinsford Cross, the other in the garden of Duddle Cottages at the side of the road as it enters Puddletown Heath between

Dorchester and Tincleton. These two latter stones are plain, rough, weather worn cylinders. They stand at the top of the Via Iceniana. Was it possible that they were originally Saxa Milliaria, although subsequently, perhaps, utilised as cross shafts? After noticing the position of these stones across the country, and the fact of others of somewhat similar character occurring in the neighbourhood more or less embedded vertically in the soil, the general conclusion arrived at was that these stones represented a boundary, and had been collected, irrespective of their previous use, and placed in their present position.

From hence the members proceeded by Headless William's Pond to Miller's Garden at Duddle and inspected the stone referred to by Mr. Thence they walked by Lower Bockhampton to Kingston Park and viewed the old Manor House, formerly the seat of the Greys, which was built about 1591. The new house, described by Hutchins as "an elegant and stately pile," was erected by George Pitt, of Strathfieldsay, between the years 1717 and 1720, and was faced with Portland stone in 1794. From here the members passed to Stinsford Church, which is dedicated to St. Michael, and on the exterior at the west door is a figure of the saint, which is much defaced. The earliest portion of the church is the chancel arch, which is of the Transition Norman and Early English style of architecture. The larger portion of the church, however, is of the Perpendicular style. The square tower contains three bells, on which occur the following:-" 1616, W.C. TG. CW. TP. Anno Do. 1663. Sancti Peter, ora pro nobis." An interesting monument exists in the interior of the church near the altar to Colonel Giles Strangways, who was "killed at Bridport on June 15, A.D. 1685, in His Majesty's service against the Duke of Monmouth's rebellion."

From the Church of Stinsford the party repaired to the Vicarage, where the Rev. C. Baskett had very kindly provided tea. This brought the day's proceedings to a close.

THE MEETING AT CHARD on Tuesday and Wednesday, July 13th and 14th, was a new departure, since the Society had never before attempted a meeting extending over one day. Many of the members arrived at the town by the 10.45 train. The rendezvous was the George Hotel, and beds were provided by the landlord either there or in the adjoining houses for some 25 applicants.

It will be seen that the town of Chard contains a larger share of antiquarian and historic interest than falls to the lot of many towns of equal size. Is is situated on the dubious country between the counties of Dorset and Somerset, and some miles from the main lines of railway. The

proximity of Forde Abbey at once lends an importance to the place, whilst the Valley of the Axe is of interest to the lover of English country scenery and the naturalist. A full account of the neighbourhood will be found in "Pulman's Book of the Axe," and various descriptions have been published from time to time of Forde Abbey, one of which appeared in the Globe newspaper for January 25th, 1884. The quarries in the vicinity of the town present a series of sections by which the junction of the chalk and the greensand may be examined. Another feature of the district is that of the large and tabular-shaped flints, which is the form which the silicious material of the greensand has assumed, and which is extensively taken advantage of for building purposes in the neighbourhood. The programme drawn out for the meeting was to visit the Roman Villa at Whitestaunton on Tuesday, taking various points of interest en route, to hold a meeting and conversazione in the Town Hall in the evening, and on Wednesday to make Forde Abbey the chief feature of the day, visiting two interesting manor houses and a church on the way. Following this plan, the first day's drive would be confined to Somerset and the second to Dorsetshire.

The President opened the meeting at the George Hotel shortly after eleven o'clock. He referred to the death of Mr. Floyer, for many years Member of Parliament for the County of Dorset; he congratulated the Hon. Treasurer of the Society on his election as a Fellow of the Royal Society, and then briefly described the programme of the meeting. The Secretary laid the new volume of the "Proceedings" (Vol. viii.) on the table, and mentioned that it was smaller than in some previous years, since they had endeavoured by reducing their expenses to provide sufficient funds to publish "The Birds of Dorset" (the work of the President) during the current year.

A start was made in carriages soon after 11.45 for Coombe St. Nicholas Church, which was described by the Rector, the Rev. A. Cornford. The building shews traces of three different architectural styles, Norman, 13th Century, and Perpendicular. The rood screen, which was very beautiful, had been divided and placed behind the choir stalls. A very perfect piscina of the 13th century period is built in the chancel, and a credence table, which evidently is not a modern addition, is on the opposite side.

The village of Whitestaunton was reached at one o'clock, and a visit was first paid to the church, which was described by the Rector, the Rev. H. A. Cartwright. The structure was a good specimen of Perpendicular architecture; the Norman font was the only relic of the pre-existing fabric. The rood screen was in fair preservation, and bore traces of its original colour. There were small chapels on each side of the chancel—the

one on the north side was the property of the Brett family, and is now in possession of the Lord of the Manor, C. S. Elton, Esq., M.P., Q.C.

The remains of the Roman Villa, discovered some five years previously in the grounds of Whitestaunton Manor House, were now visited. Major Davis, F.S.A., who had carried out the task of excavating the remains, had travelled over from Bath for the purpose of describing the principal features of the Villa. He said that some forty years ago, whilst making a new road, the workmen came upon some Roman tesseræ, which led to the impression that a Villa existed near the spot, though its site was not then ascertained. In the year 1882 Mr. Elton again discovered some tesserse in the brook below, and by cutting beneath the bed a layer of red stone was found. By Mr. Elton's request Mr. Davis then undertook the task of excavation, and by diverting the course of the stream and clearing away a quantity of mud and rubbish he was able to lay open the foundation of what was clearly a Roman house, though certain portions were not complete. Mr. Davis assumed that this was the house of a Roman, who was probably Lord of the Manor, and it appeared that as time went on it was not large enough for his requirements, since there are traces of additions to the original structure. The house faced south, the front wall being 60 feet in length. Many of the rooms could be traced, and the bathing apartments could be clearly distinguished, the heating of which was effected by a hypocaust of two storeys, an arrangement which he believed was not to be found elsewhere in England. The pilæ supporting the floor were of red stone, and the slabs covering the whole were of Ham Hill stone. A hand quern and cider wheel and a quantity of pottery were also discovered.

The Rev. Prebendary Scarth considered that there still remained much to be discovered, for the dwelling places of the Romans of distinction were usually surrounded with numerous outbuildings.

Luncheon was now taken at two p.m. in a barn adjoining, kindly lent for the purpose by Mr. Wyatt.

After luncheon the route lay over the high ground to Bewley Down. This elevated district, which is covered with short turf growing on a thin soil lying on the green sand, is only in places brought under cultivation. Had the day been clear extensive views would have been obtained on all sides, since the district constitutes some of the highest land in the surrounding country, but a thick driving mist shut in the landscape. At certain spots on the surface of Bewley Down there exist some ancient stone circles and hut rings, which it was the object of the party to visit. Unfortunately, owing to the growth of fern and gorse, these could not be found, and a walk of two miles or so across the rough ground proved fruitless.

Membury Camp, some two miles further on the west of the ridge, was next visited. This is an ancient British fortress occupying a commanding position, from which seven or eight other earthworks can be seen; it is considered to have been constructed to protect the inhabitants of Somerset from their Dorsetshire enemies.

On turning homewards from Membury Camp the route lay through the parish of Chardstock, where the new church, erected by Canon Woodcock, was visited. In the same parish there is an old barn, which is stated to have formed a portion of the summer palace of the Bishops of Sarum as far back as A.D. 1070. The timber roof and the mullions of the windows were the most noticeable features.

The expedition reached Chard at about 6.45 p.m. after a successful day and no serious drawbacks. The weather, so important an element in such an undertaking, was favourable, the slight rain of the morning served to lay the dust, and, if the scenery was obscured by mist, the heat was at any rate diminished. The party averaged about 40 during the day.

Dinner was served shortly before seven at the George Hotel, and was attended by various friends and residents of the neighbourhood. After dinner the Rev. H. A. Cartwright fulfilled his promise of the earlier part of the day, and related some interesting anecdotes of predecessors of his in his own parish. A conversazione was held at eight o'clock at the Town Hall, and was attended by some 50 people. Adjoining the Town Hall is a small museum, presented to the town by the late Mr. Arthur Hull. The chief features of its contents are a spinnette of Queen Elizabeth's reign, some Dorset tokens, and various stone implements. Amongst the objects of interest exhibited in the room were a piece of lace worked at Messrs. Wheatley and Co.'s factory on the preceding day, an engraving of Forde Abbey, dated 1734; an oil painting of the Market Place, Chard, by John Terry, date 1750-60, with nine celebrities of the town represented in it; another painting of Chard by Francis Builland, dated 1818. The President exhibited some specimens of Carex teretriuscula and Orchis incarnata. The Rector of Chard exhibited a rare medal struck in commemoration of the Seven Petitioning Bishops.

The programme for the evening included a discussion on the Roman Road discovered the preceding autumn between Badbury Rings and Ashmore, and its probable connection with the Roman Road running along the ridge of the Mendip Hills in the direction of Old Sarum. The Rev. Prebendary Scarth, Rector of Wrington, Somerset, one of the leading authorities on Roman antiquities, gave an interesting address on this subject, which will be found at p. 153 of this volume.

The Hon. Secretary read the second part of the Review of Mr. Warne's

Celtic Tumuli of Dorset, written by Dr. Wake Smart; this will be found at p. 55 in this volume. A paper was afterwards read on Forde Abbey by Mr. J. S. Udal, printed at p. 136 of this volume. This paper was intended to serve as a guide to the members before visiting the place on the morrow. Finally the Rector of Chard, the Rev. Prebendary Buller, gave a description of the architectural features of his own parish church prior to conducting the members over it the next morning. The following are the chief points to which he alluded :- The parish church of St. Mary, Chard, was founded by Jocelyn Trotman, called Jocelyn of Wells, who was Bishop of Wells from 1206-1242. He seems to have rebuilt Wells Cathedral, and portions of the nave, transept, and choir are his work, whilst the chapel attached to the Bishop's palace also owes its origin to him. He was buried in the midst of the choir of his cathedral in the year 1242, after occupying the office of Bishop for a space of 37 years, "God," says Fuller, "to square his undertakings, giving him a long life to his large heart." Of the original church the diocesan surveyor considers there is only one stone remaining. The present building was erected between the years 1400 and 1410, and is in the Perpendicular style of architecture. It is not by any means in the first rank of Somersetshire churches, but nevertheless has a character of its own. It is quite unadorned, yet the colour of the Ham Hill stone of which the arcades are built impart a warmth to the whole. It is 120 feet in length and forty-six in breadth, the nave being divided from the aisles by six arches on each side. There are three hagioscopes, or squints, in the church, and the circular staircase, which led to the rood screen, is still in place, although every vestige of the screen itself has disappeared. The two transepts were originally used as side chapels; one belonged to the chantry of the Virgin Mary, the other to the fraternity of St. Catherine. Each chapel had its altar, and the remains of the niches containing figures, which formed the reredoses, are now to be seen in the church. There are also remains of a piscina on the south side of the chancel. The font is of the same date as the rest of the church, and is ornamented with quatrefoils and the Tudor rose. There are few monuments in the church, and these of no special importance.

The meeting closed at about 10.15 p.m.

Wednesday, July 13th.—The town of Chard possesses several objects of interest of its own, and, time being limited, many of the members made a very early visit to some of them. The factories, which are engaged in the manufacture of curtain lace, employing several thousand hands, are owned by Messrs. Gifford, Fox, and Co. and Wheatley and Co. The process is a curious one, and the machinery employed is very complicated. The Grammar School owes its origin to a deed poll, dated May 24, 1671, signed

by William Symes, of Poundsford, Somerset. It is a stone building standing in the lower part of the town. The house on the Cornhill, now occupied by Mr. Norrington, ironmonger, is specially interesting. It contains a large room of Elizabethan architecture, usually termed the Justices' Hall, with an elaborately carved ceiling, decorated with plaster medallions representing the Judgment of Solomon, the Fiery Furnace, Daniel in the Den of Lions, and the Book of the Law. The rest of the surface is panelled in squares and ornamented with grotesque figures of birds and animals. It appears to have been built about the time of James I., and is in the style of that period. The decorations have been stated to have been executed by a band of wandering Italian artists. Over the mantelpiece is carved a badger, the emblem of Lord Cobham, Lord of the Manor of Chard at that time. Tradition states that in this room the rebels of the Monmouth insurrection were tried by Judge Jefferies. Finally, amongst the objects of interest are the Snowdon Quarries and Caves, within a mile from the centre of the town, showing junctions between the chalk and the greensand.

A start was made in carriages at 10.30 a.m. for the day's excursion. The route lay over Windwhistle Hill, from which, had the day been clear, a fine view would probably have been obtained, but a thick mist and fine rain shut in the landscape. The parish of Wayford was first visited, where an old manor house, now used as a farmhouse, was inspected. This structure, which is exceedingly picturesque, is of Jacobean style, with a porch, pronounced by the Secretary of the Somerset Archaelogical Society at their meeting in 1882 to be Italian. The Drawing Room possesses a good decorated ceiling, and on the mantelpiece is the date 1602, which we may consider to mark the date of the house. The armorial bearings over the entrance are those of the Daubeney family; gules, four fusils conjoined in fess, argent. The crest two dragons wings, addorsed, sable, conjoined by a knot, or a holly branch, leaved and fruited, proper. The church adjoining is evidently a 13th century structure.

The parish of Winsham was next reached, where the church, which is an interesting building, was described by the incumbent, the Rev. D. H. Spencer. He stated that the church was probably begun in the 13th Century, the nave walls bearing traces of the work of that date. The west window was a good specimen of 14th Century architecture. The tower was apparently of Perpendicular style, and, therefore, a more recent structure. A painting on wood, representing the Crucifixion, had been removed from the tower and placed in the chancel. The date of this is unknown. The pulpit is Jacobean, and the panels bear traces of having formerly contained artistic designs.

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Luncheon, provided by Mr. Lawrence, of the George Hotel, Chard, was served in the schoolroom of the parish. The route now led to Leigh House, an excellent specimen of Elizabethan architecture, the property of Colonel Henley, and now in the occupation of General Anderson, who extended a hearty welcome to the party. The front of the house is in the shape of an E; it bears the date of 1611 on a lead pipe, though this has probably no connection with the actual structure. The interior is very interesting in the matter of the decorated ceilings and carved mantelpieces with which many of the rooms are adorned.

Forde Abbey-the piece de resistance for the day-was reached at three o'clock. It is the seat of C. H. Evans, Esq., and is situated on the banks of the river Axe. The view is not extensive, but the surroundings are extremely beautiful, and the place is certainly one of the most perfect of the conventual establishments formerly so common in the country. The paper descriptive of the history and architectural features of the abbey, from the pen of Mr. J. S. Udal, will be found at p. 136 of this volume. Additional information was given by the Rev. C. A. Bragge, vicar of Thorncombe, Major Davis, and the housekeeper of the Abbey. The day had now become beautifully clear and sunny, and, after examining the interior of the building, the party sat about under the trees, or wandered through the grounds and along the banks of the Axe until it was necessary to start for the railway station. An excellent photograph of the members was taken in front of the house by Mr. W. C. Waldron, of Chard, before leaving. Owing to the unavoidable absence of the President on this occasion, the duties devolved on the Rev. Sir Talbot Baker, Bart., a Vice-president of the Society. The entire party reached the station in plenty of time for the 5.43 train for Yeovil, and this brought a very successful meeting to its close,

A MEETING was held at Whitchurch Canonicorum on Monday, August 15th, at which the President, Treasurer, and about 45 members and friends were present. The day was beautifully fine, and the programme was an attractive one. A start was made from the Bull Hotel, at Bridport, about twelve o'clock. The site of the George Inn, where Charles II. stayed when attempting to escape to France, is now occupied by the premises of Messrs. Beach and Barnicott. From Bridport the drive lay over Symondsbury Hill, leaving the village on the right, passing Chideock parish, and surmounting Chideock Hill, from which a fine view of the Vale of Marshwood and Charmouth Bay was obtained. Thence passing Haddon Hill with its gravel quarries, the route led down a steep and narrow lane, whence the fine tower of the clurch at Whitchurch was seen in front, and

soon the village itself was reached. Here the party were welcomed by the Vicar, the Rev. J. W. R. Stafford, and his wife.

The fine parish church, just about to undergo restoration, was first visited. It was hoped that the architect, Mr. G. Vialls, would have read a paper on the architectural and antiquarian features of the building. his absence, however, Mr. J. S. Udal undertook the task. name of the parish was derived from St. White, a virgin martyr, registered in the Roman Calendar by the name of St. Candida, "whose well on the side of the hill where she lived is here shewn, and to whose honour a church is built" (Hutchins). The church was of great interest to the student of ancient architecture, and consisted of a western tower, containing four bells, opening into a nave by a lofty arch, side aisles, transepts, chancel, and south porch. The chancel and portion of the nave were Transition Norman, circa 1170, the transept about 1200, the tower and some later additions about 1400. The nave was a wide and lofty building covered with a cylindrical roof, circa 1400, which was of oak with ornamental bosses at the intersections, and covered with lead externally. pointed and richly moulded arches of the north arcade rise from a central circular column, with semi-detached shafts at the cardinal points, having covered capitals. The arch immediately opposite the north door had a beautiful variety of the chevron ornament as an enrichment to the mould-The south aisle had an arcade of mixed character—partly Norman, partly of later work. The south doorway was a good example of Transition Norman. The church was extensively restored in 1849, in the course of which the Commandments in the elaborate black letter of the date of Edward VI. were discovered. The rectory before the Conquest belonged to the Abbey of St. Wardvalgeselus in Normandy, and seems to have been given to it by Edward the Confessor. Before A.D. 1215, either by purchase or the gift of the Abbot, it came to the Bishop and Church of The gift was at present between the Canons of Sarum and the Canons of Wells. The Vicarage: The patron was formerly the Bishop of Bath and Wells, but it had recently been transferred by the Ecclesiastical Commissioners to the Bishop of Salisbury.

The Vicar read the report on the restoration of the church, drawn out by the architect, Mr. Vialls. The cost of the restoration would amount to upwards of £1,500.

A discussion on Mr. Udal's paper ensued, in which the President, the Vicar of the parish, the Rev. C. R. Baskett, and others joined. The Vicar, the Rev. J. R. W. and Mrs. Stafford, then entertained the party at luncheon at the vicarage.

Mr. John Batten then read the outlines of a paper which he was pre-

paring for a future occasion. It dealt with the subject of the Barony of Marshwood. There was only one case in which the Crown had by an extreme stretch of right broken through the rule of primogeniture. This was in relation to the Barony of Marshwood in the time of Henry II. Gregory de Mandeville the First was twice married, and had sons by both wives, but Henry II. granted the Barony to the son of the second wife on the ground that he was the better knight. A descendant of the first son Robert asserted his claim subsequently, and the lands were restored to him-

The Rev. C. R. Baskett then read a poem descriptive of a legend connected with the building of the chapel, which was quoted from "Good Words."

The party then proceeded to the chapel of St. Gabriel to see an old rood screen lately taken from the ruined chapel near the sea. Of Stanton St. Gabriel Hutchins, in his "History of Dorset," says "Chapel of Ease of Whitechurch. It has a building of the 13th century, but has been disused since the erection of a new chapel at Morecombelake in 1841."

The ascent of Golden Cap, one of the highest points on the coast between Bridport and Weymouth, was then made, from which a magnificent view was obtained of the inland country lying towards the north and east, and of the coast line from the Chesil Beach to Lyme Regis, exposing sections of the whole of the Liassic and Lower Oolitic Strata. At this point the President gave an interesting address on the geological features of the district which extended before them.

The return route lay through the parish of Chideock, where the church was visited, after which the party proceeded to the Manor House at Symondsbury, where they were entertained at tea by Mr. and Mrs. J. S. Udal, who also exhibited a collection of rare books on Dorset topography, but time was wanting for more than a very hurried glance at them.

This brought another successful meeting of the society to a close.

The last Summer Meeting of the Field Club was held at Poole on Tuesday, September 13th, and owing to the fineness of the day a much larger number of members and friends were present than had been expected. The programme, which was the joint production of the Rev. O. P. Cambridge, Dr. Turner, and Mr. Wm. Penney, was a very large and varied one, and was excellently carried out. At eleven a.m. the party met at Poole House, built A.D. 1746 by Sir Peter Thompson, F.R.S., an eminent Hamburgh merchant, who was born in 1698. In this house Sir Peter resided during the latter portion of his life, and, being a great lover of antiquities, he collected several ancient records relating to the town of Poole. The house is built in Queen Anne's style of architecture,

and the rooms are many of them panelled with oak, and further decorated with carved oak mantel pieces. A large quantity of Spanish mahogany was also used in the construction of the building.

From Poole House the members proceeded to the New Free Library, where they were received by Mr. J. J. Norton, who built the premises and handed them over to the town of Poole.

The Guildhall was then visited, where the two maces, seals, and Mayor's chain were exhibited; also the loving cup presented in 1883 to the Mayor by Lady Elizabeth Schreiber. Mr. Penney stated that the maces were new; the original maces were, however, still in the town, having passed into the possession of private individuals, together with various other relics formerly the property of the Corporation. An interesting relic was also exhibited. This was a silver oar, the property of the Mayor, in virtue of his office as Admiral of the Port of Poole. The oar bore the date of 1780.

Under the guidance of the rector, the Rev. J. A. Lawson, a visit was paid to St. James' Church. The Rector stated that the old Church of St. James' was a very ancient building, consisting of a nave, two aisles, and a tower, with a lady aisle on the north side and a rood loft. The south aisle was built in the reign of Edward IV. (15th Century). It appeared that formerly the Mayor was connected with the church, and had a share in the appointment of priests. The old church was taken down in 1819, and the present building was erected, Purbeck limestone being the material used for its construction. The style of architecture was Georgian, and this church might, the Rector said, be considered a perfect specimen of that type, to which, however, a member of the club demurred, saying that he thought St. Mary's, Weymouth, was a more perfect one.

Dr. Turner then conducted the party to the Town Cellars, stopping on the way to notice the site of the old Monastery, which was confiscated by Henry VIII., and is now occupied by St. George's Almshouses. The full description of these antiquities will be found in the paper by Dr. Turner contained in the present volume.

By the kindness of Mr. Penney a steamer was placed at the disposal of the Society, and a voyage was made across the harbour to the Sandbanks. Here luncheon was taken at the Sandbanks Hotel. After luncheon the President read a paper on the Geology of the District, of which the following is a resumé. Referring to the absence of Professor Rupert Jones, who was expected to be present, he said:—

The names of two geologists stand prominent in connection with the Tertiaries of Great Britain, of which Poole and its neighbourhood forms a part. Professor Prestwich was the first to bring them into anything like a scientific classification. Webster had correlated the fluvio-marine beds of the Hampshire basin with Cuvier's and Brongniart's five groups into which they had divided the Tertiary strata of the Paris basin, and upon them he founded

his three divisions of the Isle of Wight beds into the Lower Freshwater formation, the Middle Marine formation, and Upper Freshwater formation. This classification held its ground for sometime, until it was materially rectified by Professor Prestwich, so thoroughly did he grasp the history of the Tertiary period from the time the Thanet beds began to cover the denuded chalk to the dawn of the Pliocene period, when the fauna and flora of England assumed their present aspect. The Professor divided the Hampshire Tertiaries into three groups: the first and lowest group he assigned to the Woolwich and Reading beds and London clay; the second to the Bagshot and Bracklesham beds, which he synchronizes with the lower part of the calcaire grossiere of the Paris basin. To the third group, which lies outside our boundary, consisting of green marls, limestones, and siliceous sands of freshwater and marine origin, he assigns all the beds upwards from the Headon and Brockenhurst beds to the uppermost Hempstead marine beds, which had been overlooked by Webster. Mr. Starkie Gardner, whose labours have been so eminently successful in developing the British Tertiary flora, has amassed from the fertile leaf-beds of Bournemouth unerring evidence of the climatal changes to which the Hampshire basin has been subject. To my personal intercourse with Mr. Gardner, and access to his works and memoirs, I am the better enabled to offer you the following notes:-The Thanet beds, which are the lowest of the series, are absent from this southern edge of the Hampshire basin. The Woolwich and Reading beds, the next in succession, comprising mottled clays, intercalated sands, and occasional beds of rolled black flint pebbles, occupy a very subordinate place. Their development, which is very insignificant here, has a large extension westward in the neighbourhood of Bloxworth, Coombe Keynes, and Lulworth. Beds of similar pebbles occur at Chalbury and Edmondsham in connection with Ostrea Bellovacina, which Mr. Gardner considers mark the western shore of the London clay beds, as they become more distinctly fluviatile from east to west. He distinguishes a difference between the floras of the Woolwich and Reading beds, the latter marking a more temperate period and identical with the Tertiary deposits of Switzerland and Greenland. Anomia sub-cretacea occurs equally at Reading and Bournemouth; Lygodium Kaulfaussi in the Woolwich beds, at Croydon and Counter Hill, as well as in the beds at the western extremity of the Bournemouth Cliffs. Near Poole Harbour both Anomia and Lygodium are associated with Taxodium Europæum, strengthening the view that plants hitherto claimed to be typical of the Miocene age lived in England before the palm and other tropical plants of the London clays had been introduced at Studland and Corfe. The flora of the Woolwich and Reading age have quite a temperate aspect. The leaves of the plane tree and many other dicotyledons prevail, similar to many Greenland tertiary forms, and showing a remarkable relationship. It is probable as the temperature increased during the deposition of the London clays the flora of the three great continents moved northward as far as Greenland and became mixed up together. A migration of types, now growing in Australia, took place in Europe, succeeded by another, which is now represented in Central America. At this period the large Bulimus lived, which gives the name to a bed of limestone at Bembridge, in the Isle of Wight, belonging to a group, the type which is now represented in the West Indies. The tropical flora arriving from America was arrested by the severance of the western communication and an extension of the eastern communication, which accounts for these tropical forms in France, Germany, and Greece, and the absence of the previous American types in those regions. The presence of Australian and American forms is a study of much interest. The former, which had a sudden and great extension, preceded the latter. The Studland and Corfe flora are good examples of the Australian type of an

Eocene flora, and quite distinct from the one above and below. Owing to a modification of climate, occasioned probably by an altered distribution of land, the temperature diminished from the close of the Middle Eccene to the Miccene age, when the tropical plants, which still exist in some parts of the world, migrated and obtained a survival, The relative age of our Tertiary beds may be calculated by the proportion of northern types they contain. It has been already shown that the two members of the Lower Eccene, the Woolwich and Reading and the London clay beds, have two distinct faunas, a northern and a southern, which have no connection with each other. Mr. Gardner attributes the distinctness of the faunas of the successive Eccene deposits to the intervention of an isthmus between two seas, a northern and a southern, which shifted its position north or south without being broken through; it stretched at one time towards Denmark, and separated the waters of the two seas. The Mediterranean was then much larger than it is now, reaching to India, which was then an island, and over the north of Africa. The Hampshire basin was then a large river delta, which extended over parts of France and Belgium; the river flowed from the west and must have drained a considerable continent. The materials conveyed by it were mainly felspathic and quartsoze from the paleozoic rocks, through which it passed; there are no flints, for the chalk had not then been upheaved. The northern sea at first only occupied a small portion of the east side of the London basin, but during the deposition of the London clay it occupied the whole of the Hampshire basin, and on no occasion had the southern fauna access, although a high temperature prevailed capable of maintaining southern types. During the Bracklesham period the London clay was covered over by the southern sea; both formations appear to have been deposited from opposite directions, one from the east, the other from the west, for their masses assume greater proportions in their easterly and westerly extensions. The succeeding Barton beds show an admixture of northern and southern types, with a remarkable absence of any truly tropical forms. It is curious the lower cretaceous beds of America, called the Dakota beds, supposed to represent the period of gault and upper greensand, consist of brackish and freshwater deposits, with leaves of the higher types of dicotyledons. The flora of these beds so much resembles that of the Reading beds, it leads to the impression that England formed part of a continent which extended to America, and which is now covered by the Atlantic. The junction of the chalk with the Woolwich and Reading beds at Studland is hidden under a quantity of rubble with fragments of a breccia flint from a ferruginous band overlying the chalk, which is soft and marly about two feet from its base; below this the chalk with flints dips to the north. The mottled clays and pebble beds of the Woolwich and Reading beds require little notice, as they hold a very subordinate place at the base of the chalk range, which runs east and west. The pipeclays, which belong to the London clay series, are of considerable importance on account of their economic value. They are worked extensively at Corfe and Creech; and are usually referred to the kaolinazation of felspathic minerals. A theory has lately been put forth that they are referable to the decomposition of chalk during subaerial denudation and a sifting of the iron it contains by the action of peaty acids. They contains besides palms, proteaceæ azaleas, figs, sycamores, tropical ferns, and Leptomeria, belonging to a group of jointed leafless trees, which in their striated internodes and tooth ribbed sheaths have some resemblance to equisetaceæ; in other respects are allied to Ephedra, which now grows in Australia, New Caledonia, and the Indian Archipelago. The oak, fig, and spindle tree are widely distributed throughout Europe, Asia, and North America. This grand deposit has been entirely exhausted, and, alas, very few of its invaluable plants preserved. In the early days of geology, when the records of the earth's history were unappreciated,

Mr. Shipp, Mr. Groves, and Mr. Austin collected specimens of the splendid showy palm leaf, acacia pods, and dicotyledonous leaves, from which time and dust have gone far to obliterate every mark of identification. Repeated and anxious search has produced only a few leaves without any distinct venation or characteristic distinction. The Museum of Practical Geology in Jermyn Street, the Museum at Oxford, the County and Corfe Museums possess portions of the leaves of the palm and fragmentary pieces of other leaves. It is sad to know that a flora, whose counterpart is only represented on the Continent in badly preserved grits and sands, should have been worked out before some of its invaluable remains had been rescued and passed under the eyes of Mr. Gardner, Count Saporta, or some equally experienced botanical palæontologists, especially as the contemporary plant beds of Alum Bay on the other edge of the Hampshire basin have been swept away into the sea. All the records are therefore irretrievably lost, and their correlation with the floras of America and Australia will remain an unravelled mystery. The unfossiliferous yellow and bright red sandstones which form the low cliff between the shore and the village of Studland are allied to the pipeclays, and are of the same age as the variegated sands of Alum Bay. There is a clay-bed containing leaves on the right hand side of the lane near Redcliff, and a good transverse section of the cliff is exposed on the road to the village a little to the east of Redcliff, showing the lines of strata. Its eastern termination is covered with furze and brambles for about 300 yards, and then subsides beneath the blown sands. A dreary waste of the sand-dunes intervene between this point and the mouth of Poole Harbour, enlivened only by the beautiful small inland lake-Little Sea, into which the sea has occasionally access at extremely high tides. It is a favourite resort of wild fowl, and on its margin grow several rare plants, one of which, Scirpus parvulus, I replaced on the list of British plants about the year 1870. The same dreary conditions continue for more than a mile on the north side of the harbour's mouth, a few hundred yards only of sand-dunes intervening between the shore and the estuary of The cliffs here rise about 150ft. above the shore, which average they retain to Bournemouth. The flora differs entirely from that of Studland and Corfe, whose beds are characterised by being of thicker and purer clay, intermixed with coarser and deeply stained sands, while those of Bournemouth consist of black or sandy clays, intermixed with beds of fine yellow sand. In the cliffs on the Poole side and close to the sand-dunes is a band of dark clay containing leaves, some of which are willow-like, others resemble stenocarpus and acacia. Mr. Gardner divides the cliffs between Poole and Bournemouth into three divisions—the most western characterised by the presence of salix and the absence of palms; the central group by an abundance of palms and ferns; the eastern by araucaria, eucalyptus, and net ferns. The physical conditions of the river may be guessed at by the absence of boulders and pureness of the silt, showing that it flowed over a flat area; the absence of lignite in the beds must be attributed to lakes and catchment basins to arrest the drifting timber, and lastly, to the absence of flint or chalk, showing that no chalk ranges were cut through by it, for the chalk had not then been upheaved, and the quartzose, granitic sands, and pipeclays must have been derived from a palæozoic area. The occasional occurrence of teredo-bored wood makes it probable that the beds were laid down towards the lower part of the river, which must have been more than a mile broad and the valley through which it flowed nine or ten miles broad. The flora of the Middle Eccene is chiefly Australian and Central American in type.

After the discussion Mr. Penney read the following notes and observations on the denudation of the coast in the immediate neighbourhood. He said during the last 50 years the chalk cliffs at this point of the coast have considerably worn away by the action of the weather upon them, but Old Harry Rock still stands with his wife, like giants in the base. Old Harry still stands high and dry at low water, and may be got at from the shore, but not so easily as 50 years ago; the channel, however, is not materially widened, the cliff opposite these rocks being, like the rocks themselves, nearly unaltered, and very hard, they have resisted both the wind and the sea. The denudation of these cliffs has occurred some distance from the point, and, probably, in the course of years another large piece of the cliff will be detached from the main land and form a rock of considerable size. I have not been able to ascertain the exact amount of surface that has sunk into the sea. The process of falling away of the cliff has been constant and gradual. The wearing away of the cliff has not, I think, been caused by the action of the sea but by springs."

The party returned from the Sandbanks to Poole by steamer, where they were entertained at tea by Dr. Turner. This brought the meeting to a close, and with it the summer work of the Society. The detailed account of some of the most interesting antiquities of the town of Poole will be found in Dr. Turner's paper at p. 79 in the present volume.

A paper on "The Natural History of Poole Harbour" by Mr. W. Penney was then read by Mr. J. S. Udal.

After noticing the physical features of the district surrounding the Poole estuary, Mr. Penney gave some detailed notes on the occurrence of mammals and birds derived during his acquaintagee with the locality during 37 years. In the course of his remarks he stated that the Badger was still to be found amongst the sandy hills of Lytchett. The Black Rat survived in some of the oil stores and granaries of the town of Poole. The Seal, by no means plentiful, occasionally visited the harbour. Some vertebræ and ribs of the whale had been dredged up in the Wareham Channel. A specimen of the Osprey was caught in a rabbit trap on September 14th, 1880, by Richard Stokes at the entrance to Poole Harbour. This was the fourth Osprey which had come into the hands of this veteran gunner during his 60 years' acquaintance with the place. Specimens of the marsh Harrier and the rough-legged Buzzard had been shot in the neighbourhood by Mr. J. Kemp, and presented to the Poole Museum by the Rev. A. Kemp. The golden Eagle had been occasionally seen during a hard winter. Richard Stokes, above mentioned, once saw one swoop down and carry off a wounded goose after the discharge of a punt gun. The mountain Finch made its appearance towards the end of the autumn at Lytchett and Kinson. The hooded Crow had The Wryneck was a constant summer visitant at been shot at Lytchett. Broadstone and Kinson heath, appearing about the second week in April, black Grouse, once frequent on the heath, was now, he believed, extinct. The common Thick-knee was shot at the sandbanks in December, 1873, by the late Mr. G. Sutherland. The Heron built on Branksea Island and the Island of Arne. Two specimens of the White Spoonbill were shot in 1866. The Grey Phalarope was an occasional visitor. Of the Bean Goose, five were shot in November, 1876. The

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brent Bernicle was a regular visitant. A Berwick Swan was shot in 1845. The common Shoveller, the Gadwell Duck, and the Pintail Duck were occasionally met with in the harbour. The Garganev Duck visited the waters and always located itself in Lytchett Bay, where it would probably breed if left undisturbed. A specimen of the Eider Duck was shot at Littlesea in 1868 by Mr. W. J. Slade. The Goosander only occasionally was found in very severe winters—one was shot in January, 1881. A Red-breasted Mergasander was shot in Poole Bay on July 4th, 1859, and was now in possession of Mr. H. Lee, F.L.S., Naturalist of the Brighton Aquarium. Of the Smew, a male and female were shot in the harbour on December 30th, 1874. Of the Grebes, a fine specimen of the Great Crested Grebe was shot in 1876; the Sclavonian Grebe was shot in Lytchett Bay in 1876; the Eared Grebe was not uncommon; the Little Grebe common. The Puffin and the Razorbill had taken possession of the chalk cliffs of the Needles and Old Harry Rocks, where they lived and bred in great numbers. The Common Gannet or Solan Goose was occasionally met with, and one was shot in 1872. The Artic Tern had been shot in the harbour. The Herring Gull and the great Black-backed Gull were sometimes to be seen. The Pomatorhine Skua had been shot there. A Storm Petrel had been shot near the black buoy at Stakes, driven in by the stormy weather. They were more commonly seen off Portland, but he knew of no other specimen having been seen at Poole. A Fork-tailed Petrel had been shot in Poole Harbour in 1859.

A discussion ensued on the conclusion of the paper. Mr. Udal strongly commented on the wanton destruction of rare birds. Mr. Cambridge, though objecting to any wanton destruction of birds, pointed out that it was often necessary to kill birds in order to preserve specimens. He contended it was as justifiable for ornithological collectors to kill birds, rare or unknown to them, as for collectors of insects to do the same in forming entomological collections. Again, many poor gunners obtained their livelihood by shooting birds, among which the rarer ones would necessarily be often included, and prove the most remunerative; and, finally, the accurate identification of a bird often could not be arrived at unless the specimen were shot. The President stated that it had been undoubtedly proved that the wholesale destruction of the hawk tribe in Scotland had led to the establishment of the grouse disease there. Nature had provided compensation for life or death, and where a superabundance of life existed Nature brought other causes in to counteract it. He alluded to the fact that by perseverance in his own neighbourhood in the form of preservation there were now to be seen birds which ten years ago were not to be found there. Unfortunately, directly birds of gay plumage wandered to these shores they were killed before they had time to get far from the coast. He would earnestly plead for the preservation of such birds. Mr. Udal, alluding to a statement of Mr. Penney's, that every strange bird noticed at Poole was immediately shot, considered that to be simply wanton destruction. He mentioned the fact that two peregrine falcons had taken up their abode near Bridport, and that once when shooting one of them swooped down and carried off a partridge which he had shot. This he considered a finer sight than anything which museums might contain. Mr. Pike and Mr. Luckham also spoke.

A COMMITTEE MEETING was held at Bloxworth Rectory on Monday afternoon, December 12th. There were present the President, Treasurer, Secretary, and Dr. Turner. Messrs. J. S. Udal and Eustace Bankes were unable to attend. The matters under consideration were the following:—The construction of a suitable schedule for recording the prehistoric monuments of the county; the advisability of circulating schedules for local investigations on various phenomena; the programme and date of the winter meeting at Dorchester; the Table of Contents of Volume ix. of the Transactions of the Society; the question of the exchange of volumes with those of other Societies.

The WINTER MEETING was held in the County Museum at Dorchester on Friday, January 27th, at which there was a good attendance. The programme was a long one, and but little time was left for discussion. Several specimens were laid on the table for exhibition, amongst which were a series illustrative of the paper on the "Fossil Reptiles of Dorset," and a fine scapula of a mammoth, "Elephas primigenius" from a gravel bed near Stalbridge, presented to the Museum by Lord Stalbridge. Seven new members were elected to the Society, Two invitations were received for the summer meetings, one from Canford. the other from the Weymouth College. The proofs of the schedules for recording "the Prehistoric monuments of Dorset" were laid on the table by the Secretary for criticism before they were finally printed and circulated. Some discussion ensued, after which the papers on the programme for the day were taken in order.

The first paper, "On Rooks," by H. J. Moule, the Curator of the County Museum, will be found at p. 123 in this volume. The President, in thanking Mr. Moule for his paper, said it had never before struck him why the rooks of the Whatcombe rookery congregated towards the larger one at Oak Close, a large timbered road, which was also the rendezvous of the neighbouring rookery of Milton Abbas, Dewlish, &c., and, after half an hour or so, they all, with one accord, joined the great colony at Oakclose, where there were millions. With respect to starlings they, like the rooks, had their meeting place. In his neighbourhood, on the land of Mr. Fookes, the well-known agriculturist, there was a withy bed which was perfectly crowded with starlings every night, and every evening they might be seen coming in in different directions to this converging point. The Rev. O. P. Cambridge said there was a similar example at Warmwell; the rooks came there from all parts of the county, and Hope Wood, where they rested, contained probably at one time the only high trees in the neighbourhood. Mr. Galpin said he had noticed the same thing at Hope Wood.

The President read an extract from a long paper, "The Fossil Reptiles of Dorset," which will be found at p. 1 of the present volume. It was

illustrated by a series of excellent diagrams of several of the leading forms, which were drawn by Mrs. E. M. Mansel-Pleydell, and were hung around the walls. A chart had also been prepared, giving a list of all the genera and species of fossil Reptilia hitherto discovered in Dorset, and mentioning the particular bed and locality where each species was found.

The Rev. O. P. Cambridge read a paper (given in extense at p. 127) on an "Ancient Hour Glass and Stand in East Hope Parish Church, Shropshire." The Secretary added a note on a glass and stand in Holwell Church, Dorset.

Luncheon was served at the King's Arms at 2 p.m.

The Secretary exhibited some green balls, which he stated were rare, and of the origin of which but little was apparently known. They were found by Colonel Stuart in the island of South Uist in August last-1887. They were taken from a freshwater loch, where the bottom for several square yards, at a depth of 3 or 4 feet, was covered with them. They varied in size from half-an-inch to 3 or 4 inches in diameter. In some instances a smaller ball lay inside a larger. A paper had been read before the Royal Society of Edinburgh descriptive of these balls, and it appeared that though other localities were mentioned in the British Islands where these balls were known to exist on subsequent investigation they proved false. Ellesmere, in Shropshire, had been given as a locality, but as yet he (the Secretary) could obtain no definite account of their occurrence from people in the neighbourhood. The question of the origin of these balls hinged on two points-were they produced by a freshwater alga, which always assumed this mode of growth; or did they arise from some current in the loch forming a whirlpool, which produced them. The President had suggested the latter as their origin, and, in the loch in which they were found, a current existed which would probably produce a whirlpool. On the other hand, in the paper above alluded to, the late Professor Dickson had mentioned that the alga of which these balls were formed assumed that mode of growth, Mr. Richardson said he had found similar balls on the sea coast in Wales. which were formed of a kind of fibre rather thicker than horse hair.

Dr. Turner read a paper "On the Church of St. Clement's and some other Antiquities of the Town of Poole," given in this volume at p. 79.

A paper was read by M. G. Stuart on "The Construction of a Naturalist's Calendar for the County of Dorset," which is given at p. 130. A discussion ensued on this subject, and it was suggested that no time should be lost in commencing to make observations on the various phenomena mentioned, and, since the year had already begun, the schedules prepared by the Royal Meteorological Society for this purpose should be obtained if possible and circulated in the county as a prelimary step.

The Secretary then read a paper on "Some Church Plate in the Parish of Shroton." The object of this paper was to obtain any notes of rare or interesting Church plate existing in the county to which attention had lately been directed by the return which the Bishop had caused to be made of Church plate throughout the Diocese.

The meeting terminated at five p.m.

During the month of March, 1888, the President's work, "The Birds of Dorsetshire: a Contribution to the Natural History of the County," was published. It is an octavo volume of 180 pages, bound in cloth, and illustrated with a frontispiece giving a view of the Swannery at Abbotsbury, together with woodcuts of various of the rarer birds which have been met with in the county. The book was reviewed in the "Zoologist" for April, 1888. In the appendix, at page 166, an account is given of the appearance of Montagu's Harrier at Winterbourne Kingston on the 24th of June, 1887, on the farm of Mr. E. Besent. The bird was disturbed from its nest whilst a field of clover was being cut by a machine, and subsequently the nest was found, containing four eggs. Later in the summer two Harriers were seen on the wing by Mr. Mansel-Pleydell, himself leisurely beating a stubble field within half-a-mile of Kingston. By the generosity of the author, at whose sole expense the work was published, a copy was presented to each of the members of the Field Club.



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AT DORCHESTER, JUNE 10TH, 1887.

House, Harry Hammond, Esq. Malan, E. C., Esq. Griffin, F. C. G., Esq., M.D. Bodington, Rev. E. J. A. T. Adams, Esq.

Pope, Rev. E. J.

AT CHARD, JULY 12TH, 1887.

Stafford, Rev. T. W. R.

Groves, Hayla, Esq., M.B. Rodney House, Bournemouth

AT WHITCHURCH, CANONICORUM, AUGUST 15TH, 1887. Richardson, Nelson M., Esq., Montevideo, Chickerell, Weymouth

AT POOLE, SEPTEMBER 13TH, 1887. Lord Bishop of Salisbury, The Right Rev.

Solly, Edward, Esq. Kelly, Alex., Esq.

Powell, Rev. F. J. Montagu

Walker, Rev. Samuel Arthur

The Palace, Salisbury Parkstone, Dorset Parkstone, Dorset Milborne St. Andrew,

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12, Royal Terrace, Weymouth

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Whitchurch Canonicorum,

Bradford Peverell, Dorchester

Blandford Rectory, Spettisbury, Blandford

AT DORCHESTER, JANUARY 27TH, 1888.

Farrer, Rev. W. Macdonald, P. W., M.D.

Evans, W. H., Esq. Bennett, Chas. M., Esq.

Warne, Chas. H., Esq.

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Hossil Reptiles of Porset.

By J. C. MANSEL-PLEYDELL, Esq., F.L.S., F.G.S.



HE secondary or Mesozoic age has been rightly designated the age of reptiles; whole orders rose, grew, and became extinct during its continuance. There were no true reptiles until the Permian, their advent had been previously foreshadowed by a large assemblage of Amphibia during the Palæozoic age, notably towards its

close. This sub-class of vertebratæ differ from the mammalia and Reptilia by the embryo having gills which permanently or temporarily perform the respiratory function; and having two occipital condyles (or protuberances at the end of the bone which attaches the skull to the spinal column); also when young, in being provided with branchial arches; differing from Pisces in their mode of locomotion, their limbs having no fin-rays, assuming the mammalian type as they advance towards maturity. These peculiarities were present among Amphibia from their earliest appearance in past geological ages. The Amphibian family comprises four distinct orders, Urodela, Anura, Ophiomorpha, and Labyrinthodontia; of these Ophiomorpha have not been met with fossilized. All the freshwater deposits from the Trias to the Carboniferous age inclusive,

abound in Amphibia, and are referrible to the Labyrinthodontic type, which approaches Ophiomorpha in the occasional absence of limbs. Some of the Labyrinthodonts were serpentiform elongated and without feet; centra of the vertebræ concave at both ends, jaws and palate armed with teeth, three pectoral plates and a series of small scales covering the ventral region. Nothing certain of the early stages of its life has as yet been found. Some of the Urodela retain the branchiæ throughout life; these are exclusively aquatic and are represented at the present day by *Proteus*, *Siren*, and *Menobranchus*.

Reptile life which commenced with three genera only in the Permian age, increased to fourteen genera and thirty-one species in the British Trias rocks, of which two only, Plesiosaurus and Ichthyosaurus, passed up through the Jurassic to the Cretaceous beds. The rest did not survive the diminution of heat occasioned by the secular cooling of the earth or other causes. The huge and varied Amphibia fulfilled the rôle nature had allotted them, and their Reptilian successors in their turn made way for the Mammalia of the tertiary age. The study of Reptilian skeletons is one of very great interest, and intensely increased when extended to a classification of the characteristic features of their ancient forms.

Reptiles, in common with Amphibia and Pisces, are cold-blooded owing to the arterial and venous blood circulating together through the body and not separately as with warm-blooded animals. The heart has two auricles, but the ventricular chamber is generally incompletely divided; the red corpuscules of the blood are nucleated, and respiration which is slow and irregular, takes place by lungs and never by branchiæ. The skull is articulated to the vertebral column by one condyle. The lower jaw consists of several distinct pieces, and is united to the skull by a bone called the quadrate. In some of the above characters reptiles agree with birds, as in the presence of a single occipital condyle, a complex lower-jaw articulated to the skull by a quadrate bone, nucleated blood corpuscules; they differ in being cold-blooded, in the absence of air-sacs throughout the body, and in the construction of the fore-limbs, which have never the wing-type.

The reptilian class includes tortoises, turtles, snakes, lizards, crocodiles, besides six extinct Orders.

 $\mathbf{Chelonia}$

Turtles and Tortoises

Ophidia Lacertilia Snakes Lizards

Crocodilia

Crocodiles

 ${\bf Ich thy opterygia}$

Sauropterygia Anomodontia

Pterosauria

 ${\bf Deinosauria}$

Thecodontia

ORDER CHELONIA, Owen.

Trunk ribs, enclosed in dermal ossifications, which, together with them, form broad, flat plates, united by sutures. These and the dorsal vertebræ are unmovable, and form the upper part of the bony case, in which the body of the animal is enclosed and covered either by a leathery skin or horny plates, the upper and ventral portions, carapace and plastron, are united at their edges, having apertures for the extrusion of the head, tail, and limbs. The scapular and pelvic arches are enclosed within the carapace.

The first appearance of a Chelonian is in the lithographic stone of Solenhofen, in Bavaria, a bed intermediate between the Kimmeridge Clay and the Coral Rag.

The Order consists of the four following families:-

Testudinæ

Land-tortoises

Emydidæ

Freshwater-tortoises

Cheloniidæ

Sea-turtles

Trionycidæ

Freshwater-turtles

Emydidæ and Cheloniidæ only have been met with in the county.

FAMILY EMYDIDÆ.

PALIDINOSA.

These Freshwater tortoises, which could equally walk on land

and swim in the water, had a much depressed carapace, the feet were webbed only at the base, which enabled them to climb the muddy banks of the rivers they frequented; the rib-plate extends over the whole length of the rib, and is articulated to the marginal plates. The carapace and plastron are united at their borders.

Two genera of this Order, Pleurosternon and Tetrosternon, occur in the Middle Purbeck beds of Swanage.

GENUS PLEUROSTERNON, Owen.

This genus, as distinguished by Sir Richard Owen, K.C.B., F.G.S., has an additional pair of elements—mesosternals—to the typical number which are comprised in the under shell or plastron, and united to the carapace by the marginal plates. The four known species of Pleurosternon are limited to the Featherbed horizon of the Middle Purbecks, Swanage. Pl. concinnum, Pl. emarginatum, Pl. ovatum, Pl. laticostatum.

Pleurosternon concinnum, Owen.

The carapace of this species is oval, broadest anteriorly, very flat, with scarcely any longitudinal elevation along the centre or any other part. The plastron is long, flat, narrow, and oval, the posterior emarginate. The length of the carapace from the first—nuchal—plate to the posterior—pygal—is thirteen inches, the breadth across the third costal plate is eleven inches, the length of the plastron thirteen inches, and breadth six inches six lines. The forms and proportions of the horny scutes that covered the plastron are shown by the narrow, well defined impressions of their boundary lines.

The carapace consists of a longitudinal series of ten median plates, on each side of which, and united by sutures, is a series of large lateral plates, and a series of marginal plates similarly united. On the ventral surface are nine bony plates, which form a continuous shield called the plastron.

PLEUROSTERNON EMARGINATUM, Owen.

This species differs from the preceding chiefly in the contour of the borders of the plastron, the anterior being straighter, the posterior more uniformly covered; also in the sides of the terminal notch being concave instead of convex, as in Pl. concinnum. There are also divergences in the impressions of the dividing lines of the scutes. The posterior and anterior borders of the carapace are emarginate. The length is twenty-one inches nine lines, breadth twenty inches.

PLEUROSTERNON OVATUM, Owen.

The carapace of this species is elliptical, and rather more pointed behind than before. It has eleven neural plates, including the pygal plate; the number of marginal plates is eleven on each side. It resembles Pl. concinnum in the absence of the anterior emargination of the carapace, which characterises Pl. emarginatum. The length of the carapace, which is very slightly convex, and the margin a little raised, is nineteen inches six lines; its breadth fourteen inches six lines.

PLEUROSTERNON LATISCUTATUM, Owen.

This species differs from the preceding three, by its distinct nuchal and small relative size of the first vertebral scute, the greater relative size of the three succeeding vertebral scutes, and the boundary lines being proportionately deeper than in any other species of Pleurosternon. The outer surface of the carapace is minutely punctuated and rugose except near the borders of the several pieces, where are coarse parallel striæ, directed at right angles to the borders.

GENUS TRETOSTERNON, Owen.

Tretosternon punctatum, Owen; ($Trionyx\ Bakewelli$, Mantell.)

This Turtle was referred by Dr. Mantell to the Trionycidæ from an individual found in the Wealden-beds of Tilgate Forest, Sussex. Sir Richard Owen explained in his Report on the British Fossil Reptiles, read before the British Association in 1851, it could not be so referred on account of the absence of the characteristic tooth-like projection, the union of the carapace and plastron by their borders, and the complete ossification of the carapace, which

place it unmistakably with the Emydians. Found in the Middle Purbeck-beds of Swanage.

GENUS PELOBATOCHELYS, Seeley.

Pelobatochelys Blakii, Seeley.

This freshwater Turtle differs from Pleurosternon and Tretosternon in the carapace, which is arched and rises to a median ridge; also in the cartilaginous space between the central and marginal plates. Mr. Seeley considers it to be more closely allied to Palæonidus from the Lithographic beds of Bavaria. Mr. Damon has a very fine example of this newly described Emydian from the Kimmeridge clay of Sandsfoot Castle, near Weymouth. The length of the carapace is $26\frac{1}{2}$ inches, and its breadth $28\frac{1}{2}$ inches. A costal plate at the broadest part of the carapace is six inches long and three inches broad. The elevated ridge, which resembles the roof of a house, has yielded to perpendicular pressure, causing a fracture on the left side, and flattening the plates at its posterior end, but without materially affecting the original outline of the carapace.

Family Chelonidæ. GENUS CHELONE, Owen.

The bony case of a Sea-turtle is of less weight than those of the preceding order, in adaptation of a natatory life. The upper portion of its irretractile head is covered with bony scales.

CHELONE PLANICEPS, Owen.,

This species, which unmistakably shews its marine character, is remarkable for several peculiarities in the shell which distinguish it from all other recent and existing Sea-turtles, and was probably their first representation in geological times. Found in the Portland Sands, Portland.

CHELONE OBOVATA, Owen.

Chelone obovata differs from the genuine type in the shape of the carapace, which is broadest at the junction of the fifth and sixth ribs, occasioning an expansion of the marginal plates. Found in the Middle Purbeck-beds, Swanage.

ORDER LACERTILIA, Owen.

The Lizard family, with a few exceptions, is furnished with two pairs of limbs; the teeth are usually planted in the grooves of the jaws without distinct sockets (some extinct forms constitute an exception), and the body covered with horny scales. The serpentiform slow-worm is a true lizard, and there are other members of this family whose fore or hind limbs are wanting. Protorosaurus Speneri from the Permian rocks is the oldest-known Lacertilian. Linnæus included the Salamanders in this Order, but Cuvier, while accepting the Order, rejected them, and they have never again been replaced, and rightly so, for they are Amphibian.

GENUS NUTHETES, Owen. NUTHETES DESTRUCTOR, Owen.

Nuthetes destructor was about the size of the Great Land Monitor of India; its teeth are finely serrated before and behind as in the Megalosaurus. It was found by the late Mr. W. R. Brodie in the Middle Purbecks at Durleston Bay, Swanage.

GENUS SAURILLUS, Owen.

Saurillus obtusus, Owen.

A new genus established by Sir Richard Owen on the evidence of the jaw and teeth of this little lizard, which was about the size of Lacerta agilis. There are six longitudinal foramina on the outer side of the jaw, indicating that it had a scaly covering, and the reptilian condition of the salivary organs. It was in all probability insectivorous.—Found in a thin layer of calcareous mud with an average thickness of nine inches in company with Nuthetes destructor and three other new reptilians and some mammalian bones. These are the first traces, perhaps, of remains which can be referred to as typical Lacertilia. Found in the Feather-bed of Durleston Bay, Swanage.

GENUS MACELLODON, Owen.

Macellodon Brodiei, Owen.

Another small Lizard, established by Sir Richard Owen, like the

last, from the jaws and teeth; these have distinct sockets, and are anchylosed to the base of the alveolar groove. The crowns of the molars are compressed laterally and are semicircular; the foremost inclined to be pointed. It occurs in the Feather-bed of the Middle Purbecks, Durleston Bay, Swanage.

GENUS ECHINODON, Owen. Echinodon Becklesii, Owen.

A much larger Lizard than either of the last two. The tooth-crown is a modification of Macellodon, also of Iguanodon. The serratures are confined to the upper portion of the teeth, which increase in size downwards towards the base, where there are two spear-like points. The teeth in the premaxillary part of the jaw and the two first in the maxillary are not flattened like the rest; the third is canine both in shape and position. It was carnivorous.—From the Feather-bed, Middle Purbecks, Durleston Bay, Swanage.

Ten genera and twenty-five species of marsupial mammals, from the size of a mole to that of a polecat, were found associated with these Lizards. The majority of the remains consisted of the lower-jaws, and a very few of the upper maxillaries. There has been no instance of the recovery of an entire skeleton nor of several bones in juxtaposition to each other; to account for this Dr. Buckland suggested the possibility that the corpses of drowned animals, distended by gases during putrefaction, while floating in the water would lose their hanging lower-jaws, while the rest of the body would drift into the sea.

ORDER CROCODILIA, Owen.

This Order differs from Lacertilia in the teeth having distinct sockets, in the venous and arterial blood uniting just outside the heart instead of in it as with other reptiles, by the fixed attachment of the quadrate bone to the skull, and in having an interclavicle and no clavicles. The living representatives, which include Crocodiles, Alligators, and Gavials, have their vertebræ concave in front; they appear for the first time in England in the Eocene rocks of the

south-west counties; those whose vertebræ are concave at both ends, or only concave behind, are extinct. The skull is distinguished from other Reptiles by its osseous palate, including the maxillæ palatines and pterygoids expanded into bony plates. The prolongation of the palatines requires a secondary posterior nares, the nasal chambers consequently communicate with the mouth by apertures which are either situated beneath the anterior part of the skull (Professor Huxley's sub-order Parasuchia) as with Stagonolepis and Belodon, both extinct since the upper Triassic age; or beneath the middle of the skull, as in the sub-order Mesosuchia, represented by Teleosaurus, Metriorhynchus, Goniopholis? &c.; or beneath the hinderpart of the skull, as in the sub-order Eusuchia, represented by the highly specialized crocodilian type of Crocodile, Alligator, and Gavial.*

Modern Crocodiles are furnished with a peculiar apparatus attached to the inside of the mouth, which is of essential importance when struggling in the water with their prey. The back-part of the mouth is furnished with a double valvate structure, one fleshy and membranous, the other a gristly plate which rises from the root of the tongue, preventing the water when the mouth is open from entering either the hinder-nostril or the glottis; the two valves together form a complete barrier to prevent the admission of water when the animal's mouth is open under the It is worthy of notice that, although the jaws of Goniopholis were large enough to grapple with large mammals, there is no evidence of any large mammal's existence anterior to the Tertiary period, Mammals up to that age were of very small size, the largest scarcely exceeding that of a polecat; no complete cranium has ever been found, neither is there any satisfactory evidence of the vertebral column and limbs of these diminutive Mammals. the thirty described species from European strata by far the greater number have been found in the neighbourhood of Swanaget in a

^{*}Huxley on the Evolution of Crocodilia, Q.J.G.S., vol. xxxi., p. 423, 1875. † See Fossil Mammalia of the Mesozoic Formation, Owen Pal. Soc. Mem., 1870.

bed of calcareous mud, obtained through the energy of Mr. J. H. Beckles, and associated with the dwarf crocodiles *Nannosuchus* and *Theriosuchus*, which are described below.

Family Teleosaurus, Geoff.

This extinct family has the centra of the vertebræ concave at both ends, jaws long and narrow, teeth slender. Cuvier grouped it with the living Crocodiles, but Geoffrey St. Hilaire, observing a difference in the position of the posterior nares, gave it the generic name of Teleosaurus, and subsequently added another genus, Steneosaurus. The number has since been increased to seven, including Metriorhynchus. All were probably marine and sublittoral, differing in their mode of respiration from the fluviatile Crocodiles, and Gavials.

GENUS STENEOSARUS, Geoff. Steneosaurus Manselli. Hulke.

This species is determined by my distinguished friend, J. W. Hulke, Esq., F.R.S., whose name will often appear in the course of this paper, especially in connection with the Kimmeridge Reptiles. The back portion of its skull, the left temporal arcade, and the entire snout show it to have had a long triangular-shaped head, converging almost in a straight line from the base of the skull to The external nostril is not included in the premaxillæ; both the anterior and posterior palatine foramina are well shown; its few and extremely large teeth and the more backward position of the posterior nares and the narrowness of the region between the temporal fossæ approach the Crocodile of the present day, and recede from the earlier Teleosaurian type. Mr. Hulke, in his Presidential address to the Geological Society in 1884, said it may be found convenient to remove Steneosaurus Manselii into a separate genus or sub-genus; Sir R. Owen proposes to call it Plesiosuchus Mansellii. The longer distance of the nares from the outer nostril, the short stout jaws with few large teeth, the premaxillaries meeting an inch and a-half anterior to the horizontal nostril show an approach to Tertiary and existing Crocodiles. The general equality of size of the tooth-crowns is typical of

the Crocodilian form, the number of teeth, however, is less than in any known Crocodile or Alligator. The chief difference of the skull of Sten. Manselii from that of Geoffrey St. Hilaire's type of Steneosaurus consists in the greater extension of the frontal bones, the prolongation of the nasals to the hind-border of the external nostril, and the smaller number of teeth.—From the Kimmeridge Clay, Kimmeridge; presented by me to the British Museum.

STENEOSAURUS STEPHANI, Hulke.

This fossil was brought to my notice by Mr. Darrell Stephens, who saw it lying on a heap of stones at Closworth from a quarry of Cornbrash limestone. Had it not been for his vigilance it would have been broken up in a few days and distributed over the road with the rest of the stones. It is figured and described in the First Volume of the Proceedings of our Club, together with a valuable contribution from the pen of Mr. Hulke. Mr. A. S. Woodward* says of it "It is the only English species of Steneosaurus as yet satisfactorily defined." The description of the skull is fully given in the first volume of our "Proceedings"; any addition here, therefore, will be superfluous.

There is a skull in the County Museum labelled Macrorhynchus, Meyer, with the snout and anterior nares missing; the situation and form of which are important characters in determining the systematic position of Crocodilia. I submitted it to Mr. Hulke, who skilfully uncovered the palato-nares, owing to the vertical compression which it had undergone these were crushed down on the base of the skull; their forward position in the palate quite discernible, shewing it to be Mesosuchian. relatively small size of the prefrontals and lacrymals places it among the Teleosauri and distinguishes it from the Metriorhynchi, the two groups into which E. and E.E. Deslongchamps divide The triangular figure of the orbital-openings the Teleosauria. distinguishes it from the sub-genus Teleosaurus as well as from Pelagosaurus; on the other hand the narrowness of the nasal bones (in which respect it resembles the sub-genus Teleosaurus as well as

^{*} Geol. Mag., p, 501, 1885.

in the squareness of the upper temporal fossæ) distinguishes it from all the members of the sub-genus Steneosaurus described by EE. Deslongchamps in his Notes Paléontologiques. Mr. Hulke for the above reasons considers it to be a genus linking the Teleosauri and Steneosauri together, with a nearer likeness to the latter, and, after a review of all its features, suggests placing it in the sub-genus Steneosaurus. I provisionally name it Steneosaurus Purbeckensis.

GENUS TELEOSAURUS, Geoff. St. Hilaire. Teleosaurus megarhinus, Hulke.

Named by Mr. Hulke from a portion of a snout fifteen inches in length, which could not have been less than three feet when whole. It is slender, tapering gradually to the aperture of the nostril, where it has a large and unusual expansion. The slightly curved alveolar borders contain twenty-four sockets besides four in each premaxilla. From the Kimmeridge Clays of Kimmeridge, and presented by me to the British Museum.

GENUS GONIOPHOLIS, Owen.

GONIOPHOLIS CRASSIDENS, Owen.

This genus was thus designated by Sir Richard Owen on account of the rectangular shape of its imbricated dermal plates, which have a projection fitting into a corresponding depression on the surface of the opposite angle of the adjoining plate; the crowns of the teeth are thick and longitudinally striated with a prominent ridge on each side. The knowledge of this well armoured Crocodile has been chiefly derived from one obtained in 1837 by R. Trotter, Esq., from the Middle Purbecks of Swanage. Since that date several portions have been procured both at Swanage and in the neighbourhood, L. Dollo in the Bull. Musée D'Histoire Nat. de Belgique, 1884, gives descriptions and figures of Goniopholis from a large series of remains obtained at Bernissart with Iguanodon. The pelvis differs from that of the existing Crocodile, and its biconcave vertebræ make it probable that it was essentially littoral. It deviates from the Teleosaurs and Steneosaurs and resembles the modern Crocodile in the festooned contour of the alveolar border, in the stoutness of the jaw, and in the unequal size of the teeth. The external nostril is dilated transversely and wholly visible on the upper surface of the snout, and above it the upper jaw is constricted as in the Gavial. The femur is relatively longer and is less bent than either in the existing Gavial or Crocodile. The tibia is also longer and thicker. The whole of the upper surface of the skull, including the snout, is richly sculptured.

Goniophilis simus, Owen.*

This species is founded by Sir R. Owen upon the entire skull. including the upper-jaw. The skull corresponds in shape with the broad-faced living crocodile; the temporal foramina are much longer and subquadrate in form. The posterior nares are also longer and not situated so far back in the skull, and are nearly in the same plane with the bony palate; in this respect it approaches The external nostril is more terminal than in Goniopholis crassidens, and is exclusively formed by the premaxillæ; teeth more slender than those of G. crassidens. The upper surface of the skull is rugose and pitted; the pits being circular or sub-circular. It is possible from the position of the posterior nares it is intermediate between the Crocodile and Teleosaurus. Mr. Hulke says these two species may be placed in a group between the Mesosuchia and Eusuchia, designated Metamesosuchia, and intercalated between the Liassic and Oolitic Crocodilians. From the Middle Purbecks of Swanage.

GONIOPHOLIS TENUIDENS, Owen.

Founded by Sir R. Owen upon portions of both rami of the lower-jaw, in which the whole or nearly the whole of the dental series is preserved, and characterised by a proportion of breadth to length of crown less than in *G. crassidens*, and therefore slenderer. From the Feather-bed of the Middle Purbecks, Swanage.

^{*} Hulke, on two skulls from the Wealden and Purbeck Formation, Q.J.G.S., vol. xxxiv., p. 37, 1878.

GENUS BRACHYDECTES, Owen.

(Name pre-occupied by E. D. Cope, 1869).

OWENIASUCHUS, A. S. Woodward.

Brachydectes major, Owen.

Founded by Sir R. Owen on the evidence of a left mandibular ramus nine inches and a-half in length, of which the alveolar tract is only three inches nine lines in length. So small a portion of the jaw being occupied by the teeth suggested this generic name to Sir Richard Owen. The outer-side of the tooth, an incisor (the only one preserved), is smooth, the forepart of the crown obtuse, the hindpart trenchant, with minute denticulations, and included in a socket. The ramus shows no vacuity, as is general with Crocodiles. The outer surface of the hinder-part of the ramus is sculptured with close-set, deep pits, giving it a strongly reticulate character.

BRACHYDECTES MINOR, Owen.

This species is considerably smaller in size than the last, and similarly determined by Sir R. Owen on the evidence of a left mandibular ramus. The dentary portion is only one inch in length, the whole of the mandible three inches and two lines, and deeper relatively than the preceding. The alveolar-border, which contains the canines, is straight, and not bulged as in Goniopholis; there is also no mandibular foramen. Both B. major and B. minor are found in the Feather-bed of the Middle Purbecks, Swanage.

GENUS PETROSUCHUS, Owen.

This genus is nearer allied to the Teleosaurus than to Goniopholis, by the rapid contraction of the skull in front of the orbits and the more forward position of the posterior-nares, and approaches Goniopholis in the irregularity of the size of its teeth and its festooned alveolar-border.

Petrosuchus Levidens, Owen.

The total length of the lower-jaw of this Crocodile is about sixteen inches, containing about twenty teeth; the surface of the skull is reticulated, the meshes being in the form of subcircular

pits one to two lines in diameter. The upper temporal fossæ are larger than the orbits, and the inside or posterior nares are larger and more advanced than in Goniopholis. The body was armed with dorsal scutes, and shews in the foramina of the skull a transition between the secondary and tertiary Crocodiles. From the Middle Purbecks, Swanage.

We now arrive at a very interesting group of small Crocodiles, referred to in a paper read before the Geological Society in 1879 by Sir Richard Owen. From the Feather-bed of the Middle Purbecks, Swanage, comprising teeth, scutes, vertebræ, detached limbs, a few skulls and mandibles, and a skeleton or two.

GENUS NANNOSUCHUS, Owen.

NANNOSUCHUS GRACILIDENS, Owen.

The jaw of Nannosuchus is not gavial-like, being short and broad. The orbits and temporal foramina are similar in dimensions and oblong in shape; the outer-nostril is confined to the premaxillaries; vertebræ concave at both ends; the body covered with oblong, quadrangular scutes, which, like those of Goniopholis, have a tooth-like peg-process at one of its angles fitting into a depression on the under surface of the next scute. The teeth are strongly curved and sharp; the skull, lower-jaw, and scutes shew its mesozoic crocodilian character. The temporal-fossæ are more oblong than in Goniopholis, but the maxillaries are not so swollen out as they approach the premaxillaries. The upper surface of the skull is sculptured with minute subcircular pits; the length of the head is four inches and a-half. From the Feather-bed of the Middle Purbecks, Swanage.

GENUS THERIOSUCHUS, Owen.

Theriosuchus pusillus, Owen.

This Crocodile is even smaller than the preceding; it approaches the type of the broad-faced Alligators in the proportion of the forepart of the skull. The dentition represents the Theriodonts of the

Trias in incisors, canines, and molars. The proportionate shortness of the head from the orbit to the snout exceeds that of any living Crocodile; the alveolar portion of the maxilla bulges out; the vertebræ are concave at both ends and very shallow. The molarteeth, unlike the incisors and canines, are not in separate sockets. Some of the back molars are laterally compressed and lamellated; those of the inferior-jaw are lodged in a common depression of the outer bone like Lacertilia. From the Feather-bed, Middle Purbecks, Swanage.

GENUS POLYPTYCHODON, Owen.

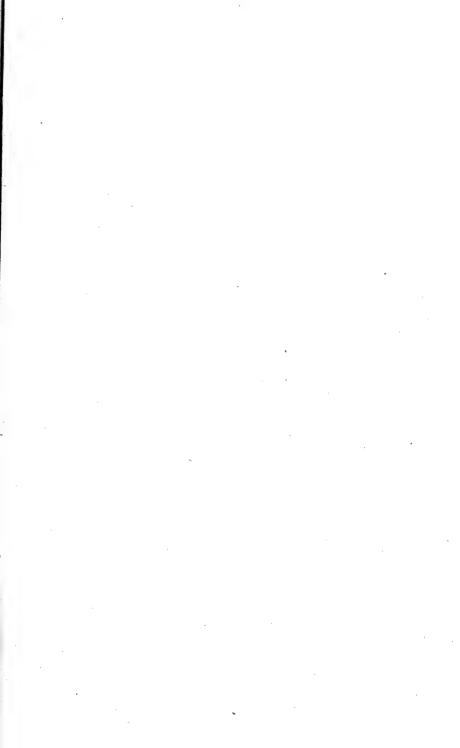
Polyptychodon continuus, Owen.

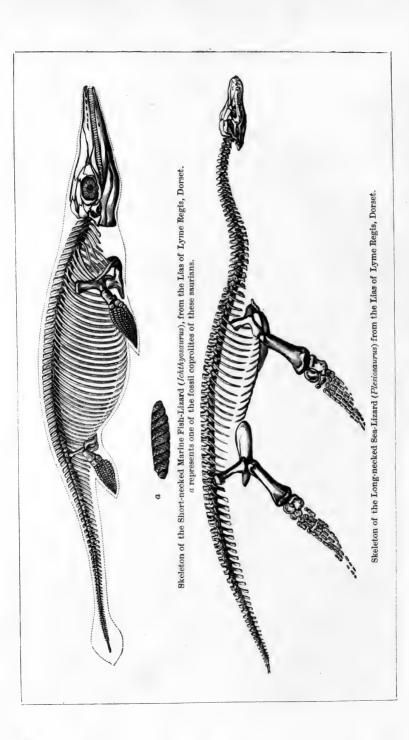
Sir R. Owen says of this genus "In collecting materials for my report on British Fossil Reptiles I soon found that among the evidences of that class in the Cretaceous deposits of England, a large species of Saurian was indicated by thick conical teeth, having the general character of the teeth of the crocodile, but distinguished by the more regular circular transverse section of the crown, the absence of two opposite larger ridges and the presence of numerous close-set, narrow, longitudinal ridges, a comparatively small number only of the ridges extending to near the apex. The general aspect of the teeth at first sight resembles the great Sauroid fish, Hypsodon, whose teeth are also found in the Chalk, but may be distinguished from it by the greater solidity of the crown, which, in Hypsodon and other predatory fish, have a large cavity, and are more rapidly shed and renewed than in the Crocodilian Reptiles. The animal to which the teeth belonged must have been of enormous size, quite equal to Cetiosaurus. absence of medullary cavities in the large bones shews that it was not a Deinosaur. It was marine in habits; the metatarsals, from their form and proportions, testify to its being neither Cetacean nor Enaliosaurian. Found in the Lower Greensand at Frome Vauchurch.

CROCODILIAN JAW, Newton.

From the Coralline rocks of Weymouth, consisting of the Monograph Foss. Rep. Pal. Soc., Cretaceous Formations, Part I., 1851,

p. 47.





anterior part of a jaw about eleven inches in length; both the right and left rami of which shew twelve alveoli with slightly compressed teeth, bearing only a few longitudinal ridges; a considerable portion of the posterior end of the jaw is wanting. The second, third, fourth, and fifth alveoli are much larger than the others; to accommodate which the jaw is wider than where the alveoli are smaller. The bases of the largest teeth had a diameter of at least half-an-inch, and must have projected about an inch and a quarter beyond the margin of the jaw.

ORDER ICHTHYOPTERYGIA, Owen.

This Order includes only the fish-like Ichthyosaurus. Both this and Pleiosaurus were air-breathers, and their nostrils similarly placed at the top of the head. The vertebræ were amphicælous (hollow at both ends), the phalangal-bones encased in a covering similar to the fin of a whale; the jaws and teeth shew they were carnivorous; the remains of fish and reptiles which have been found in their skeletons testify to the nature of their food. The caudal vertebræ are compressed towards the end of the tail and vertically flattened, so as to give it a lateral movement from side to side.

GENUS ICHTHYOSAURUS, König.

The Ichthyosaurus resembled the Cetacea in the apparent absence of a neck, through the similarity of the breadth of the base of the head with the part of the body to which it was attached. It had doubtless a horizontal caudal fin to facilitate its coming to the surface more rapidly, which in an air-breather was necessary, but being cold-blooded there was no need of its doing so as frequently as the warm-blooded whale. The nostrils of the Ichthyosaurus are placed a little in front of the orbits; it is destitute of sacrum, sternum, and sternal ribs; the teeth are not placed in sockets, but in a common alveolar groove; the swimming paddles are composed of a number of polygonal phalangal-bones arranged in five longitudinal rows with a marginal row of ossicles at each border. The bodies of the vertebræ are usually detached

from the neural arches; they are exceedingly concave, the terminal surfaces nearly meeting at the central hollow; sometimes the depression commences at once from the border, at others a flat horizontal space intervenes; the vertebræ of the main-trunk have double-cupped articular surfaces; and a pair of tubercles to receive the bifurcated rib. It is probable the Ichthyosauri had the power of locomotion on land, resorting occasionally to the shore to deposit their eggs, or to bask upon the rocks. The eye had a peculiar mechanism, being protected by a ring of bony plates—sclerotic, a common structure in Birds and Lizards—which contracted the area of vision by pressure upon the cornea, enabling it to focus near and distant objects and to sweep in every ray of light when swimming at great depths. Its first appearance in Great Britain is in the Rhætic beds of Penarth, Glamorganshire.

ICHTHYOSAURUS COMMUNIS, Conybeare.

Although the name of this species seems to imply its frequent occurrence, it cannot vie in this respect with Ich. intermedius, which is by far the most common. The skull is very broad behind the orbits, narrowing rapidly towards the snout. The roots of the teeth bulbous, contracting to a conical slightly curved crown, transversely subcircular, with fine longitudinal striæ, which become coarser towards the base. The fore-paddles are exceptionally larger than the hind. The number of vertebræ is about a hundred and fifty, of which one hundred at least extend from the pelvis-region to the end of the tail. Found in the Ammonites Bucklandi Zone of the Lower Lias of Lyme Regis, and Charmouth.

ICHTHYOSAURUS INTERMEDIUS, Conybeare.

Ich. intermedius differs from the preceding in the smaller size of the orbits, the teeth smaller and longer, the crowns narrower at their base and more acutely conical, the longitudinal striæ fewer and the ridges less prominent. The hind-paddles are equally disproportionate to the fore-paddles, as in Ich. communis, but narrower in proportion to their length. From the Lower Lias of Lyme Regis, and Charmouth.

ICHTHYOSAURUS PLATYODON, Conybeare.

The skull of this gigantic species far exceeds the two preceding, differing from both in its elliptic orbit. The crowns of the teeth are smooth, enamelled, compressed laterally, sharp-edged and pointed; there are forty-five in the upper-jaw and forty in the lower; paddles long and narrow, the fore and hind nearly of equal size; length from head to tail thirty feet. Lower Lias, Lyme Regis.

ICHTHYOSAURUS BREVICEPS, Owen.

Ichthyosaurus breviceps is characterised by the skull being about one-sixth the length of the body and equally divided between the pre-orbital and post-orbital regions, the fore-paddle twice as long as the hind, the base of the teeth swollen, less compressed than the preceding and more finely grooved; number of vertebræ one hundred and fifty. From the thick limestone called Broadledge, Lower Lias, Lyme Regis.

ICHYTHOSAURUS LONCHIODON, Owen.

One of the largest of the family, surpassed only by Ich. platyodon; the head is relatively smaller, the teeth straight and more slender in proportion to length, the crowns round and not compressed, the jaws deeper, tapering less gradually towards the snout. From the Lower Lias of Lyme Regis.

Ichthyosaurus latifrons, Kön.

Only the posterior portion of the jaw of this species has been recovered, but sufficient to come to the conclusion that it was long and slender, as also were the teeth; the fore-paddles are large and strong, the phalanges few and relatively large.—From the Lower Lias of Lyme Regis.

ICHTHYOSAURUS TENUIROSTRIS, Conybeare.

Characterised by the slenderness and length of the jaw, and by the slenderness of the teeth in proportion to their length, of which there are sixty-five or seventy on each side of the upper jaw and sixty in the lower, directed obliquely backwards; the orbits are very large, which with its flattened cranium gives it a snipe-like appearance. The fore-paddle is as disproportionate to the hind as those of *Ich. communis* and *Ich. intermedius*. It has an

extensive range in Great Britain, having been found in the Lias beds of Stratford-on-Avon; the neighbourhood of Bristol; Barrow-on-Stour, Leicestershire; Street, Somersetshire; and Whitby, Yorkshire. There is one in the County Museum from the Lower Lias of Lyme Regis.

ICHTHYOSAURUS ENTHEKIODON, Hulke.

Provisionally named by Mr. Hulke in 1869 from the fragments of a long and slender snout and teeth from the Kimmeridge Clay, Kimmeridge; confirmed the year following by my eminent friend from another and more perfect specimen we found on one of the ledges in Kimmeridge Bay. The roots of the smooth and slender teeth are surrounded by a thick bulb of cement; the length of the head 23.5 inches, orbits large, furnished with a sclerotic ring; fifty-six vertebræ in an unbroken series; the paddles extremely small; a few only of the phalangal bones were preserved; humerus 2.7 inches long; femur 2 inches; the distal end to which the tarsal and phalangal bones were attached, 1.1 inch broad. The snout not so long relatively as that of Ich. longirostris, from which it also differs in the shape of the coracoids, and the smooth tooth-root. It resembles Ich, tenuirostris in the preponderance of the fore-paddles over the hind. Presented by me to the British Museum.

ICHTHYOSAURUS incert., Hulke.

The skull of an Ichthyosaur, with some accompanying teeth, which I found in the Kimmeridge Clays, of Kimmeridge, and submitted to Mr. Hulke, were too fragmentary to enable him to give it a specific name. The snout when perfect could not have been less than three feet long. The crowns of the teeth are finely striated and bluntly pointed, the lower compressed portion being without the usual dividing belt; their larger size separates it from the slender-snouted Liassic group; and from Ich. communis and Ich. enthekiodon in their swollen tooth-roots.

One of the cases in the Geological Department of the British Museum, Cromwell Road, contains a few vertebræ of the two following species from the Kimmeridge Clays in the neighbourhood of Weymouth:—

ICHTHYOSAURUS TRIGONUS, Owen.

This is not an uncommon species in the Kimmeridge Clays of Shotover and Swindon, varying from twenty feet to five feet in length. The dorsal and tail vertebræ are oval, the height and width being double its length; those of the neck are pentagonal and flattened towards the edges.

ICHTHYOSAURUS THYREOSPONDYLUS, Owen.

This species is remarkable for the shortness of the vertebræ, the length averaging less than two fifths of the diameter; in other respects the vertebræ resemble those of Ich. trigonus.

ORDER SAUROPTERYGIA, Owen.

This Order, like the preceding, had no bony or horny covering. The vertebræ are either flat or very slightly concave at both ends; the neural arch through which the spinal cord passed was anchylosed to the centrum. There was neither a sternum nor sternal ribs, the sternum being supplied by a pair of coracoids which meet and join by a longitudinally extended margin. The clavicles and scapula were perhaps represented by a triradiate bone, which, uniting with the coracoid, combined to form the shoulder-joint. The neck was usually very long, and composed of numerous vertebræ; the sacrum of two vertebræ; the orbits large, usually with no scleroid plates; limbs in form of swimming paddles with elongated phalangal bones constricted in the middle; the hind-limb very nearly resembled the fore-limb; teeth inserted in distinct sockets in one line.

GENUS PLESIOSAURUS, Conybeare.

Plesiosaurus comprises gigantic marine reptiles chiefly characteristic of the Lias and Oolite. The snout is prolonged and the jaws furnished with numerous teeth; the number of the vertebræ of the neck varies with the species from twenty-four to upwards of forty; each is furnished with a rib resembling those found in the

neck of the Crocodile; the sacrum consists of only two vertebræ. The large orbits have no scleroid plates, with the exception of Ples. dolichodeirus. In consequence of the large size of the premaxillary bone the nasal aperture is placed far back, and is a little in front of the orbits. Coracoid long, parallel with the axis of the trunk; scapula short, straight and somewhat flattened, forming with the coracoid cavity—glenoid—which receives the humerus. The habits of Plesiosaurus were probably marine; this may be inferred from the remains with which they were associated. probable, however, that some species ascended rivers, having been found in the Wealden freshwater deposits. The comparatively short tail and large paddles render it likely that the limbs were the chief means of propulsion; the long neck would tend to impede its progress through the water, and would adapt it better for swimming on or near the surface. The sharp teeth were well suited for catching and holding the fish which formed part of, if not altogether, its food. Plesiosaurus is known to have existed from the time of the Lower Lias to the Chalk. More than fifty British species have been described from different localities. This genus has a wide geographical distribution; it has been found in Europe, India, Australia, North and South America.

Plesiosaurus dolichodeirus, Conybeare.

The head of this species is remarkably small, snout broad and short, temporal fossæ broader than long. Neck as long as the body and tail united, and consists of more than forty vertebræ, which articulate by shallow concave surfaces; the pubis expands into a broad plate, which, with the ischium and the ilium, forms the cavity (acetabulum) to receive the femur. The orbits, as has been already mentioned, are furnished with sclerotic plates; teeth very slender and curved, about twenty-five in number on each side of the jaws. Found in the Ammonites planorbis zone, Lower Lias, Lyme Regis and Charmouth.

Plesiosaurus Rostratus, Owen.

Named and described by Sir R. Owen from a perfect skeleton, from the Ammonites Bucklandi zone, Lower Lias of Charmouth.

Most of the bones retain their relative position, and the excellent preservation of one of its fore-paddles was probably owing to the casual preservation of the original integument before sinking into the Liassic mud. The skull is much larger than *Ples. dolichodeirus*, being one footeleven inches long, and nine inches broad, seven inches and a-half across the skull behind the orbits and only two inches across the narrowest part of the snout. It approaches Teleosaurus in the lengthening out and attenuation of the jaw.

Plesiosaurus rugosus, Owen.

The wrinkled exterior margin of the vertebræ of this species, and the surfaces of the femur and humerus, suggested to Sir R. Owen the specific name rugosus. The head has never yet been found, but from the small size of the surface of the upper cervical vertebræ, which were about thirty-four in number, as well as from the length of the neck, it is probable the head was small, as in Ples. dolichodeirus. Parallel with the tibia and fibula is an ossicle, regarded by R. Owen as probably the homologue of the patella, which is found also in Pliosaurus.

PLESIOSAURUS HAWKINSII, Owen.

The head of this species is somewhat larger than that of *Ples. dolichodeirus*, the neck equals three lengths of the head, and the neck and head together equal the trunk. The number of cervical vertebræ is six less than in the species just named, but shorter in the neck by six cervical vertebræ. The teeth have the usual genuine type, long, slender, and slightly recurved with fine longitudinal striæ; the upper jaw is armed with about forty teeth on each side, the lower jaw with about thirty-four; the ischium and pubis, which is large and square-shaped, together form the foramen ovale, as well as the cavity to receive the femur; there are six carpal bones. From the Ostrea beds of the Lower Lias, Lyme Regis.

Plesiosaurus macrocephalus, Owen.

The head of the species is larger than that of *Ples. Hawkinsii*; the vertebræ of the neck are stouter, and they have costal processes for the attachment of muscles to facilitate the movement of its large

head; they are six less in number than in *Ples. dolichodeirus*, decreasing in dimensions forwards. The crowns of the large laniary teeth of some are ten inches long, their transverse sections nearly circular. The nares are placed anterior to the orbits and near the highest part of the head. The femur is relatively largely than in *Ples. Hawkinsii*, and exceeds the humerus by one eighth of its own length. Besides some peculiarities in the skull it shews an approach to the Crocodilian and Ichthyosaurian types by the size of the head in relation to the body and in the shorter but stronger neck. Number of carpal bones eight.—From the Ammonites planorbis zone, Lower Lias, Lyme Regis.

PLESIOSAURUS MACROMUS, Owen.

While Ples. macrocephalns among other characteristics is distinguished by the superior size of the hind as compared to the forepaddle, in the present species the contrary proportions prevail, the fore-paddle of the Ples. macromus is the largest, and in this respect approaches the Ichthyosaurus. Below the head of the humerus are two rough protuberances for the attachment of muscles; its front part is slightly convex, the hinder part concave. The femur differs in form as well as in size from the humerus, the front and hinder margins being slightly concave. The skull and teeth of this species have never as yet been found.—From the Lower Lias of Lyme Regis.

Plesiosaurus oxoniensis, Phillips.

Vertebræ remarkable for the almost circular outline of the articular surfaces; only a few of them have been found in the Oxford Clay near Weymouth; but they frequently occur in the neighbourhood of Oxford, where a whole vertebral column has been met with. The cervical vertebræ shew a rapid augmentation in size towards the head; the caudal vertebræ indicate a rapid contraction of the size of the tail, which must have been shorter than is usual in this genus. The head was probably small; the whole length of the animal about fifteen feet.

Plesiosaurus brachistospondylus, Hulke.

This species is determined by Mr. Hulke from five middle

dorsal vertebræ, portions of several ribs and a phalangal bone. The vertebræ are characterized by the extreme shortness of the centra, which are four and a-half times as broad and four times as high as they are long, such as is not found in any other species of Plesiosaurus. They are hollow in the middle and swollen near the circumference; in this they approach the Ichthyosaurian type, but differ in the anchylosed neurapophyses, which bear long transverse processes directed upwards and outwards, and in the neural spines being long and straight; the phalangal bones have the usual Plesiosaurian elongated form and constricted in the middle; the ribs have simple flattened heads.—From the Kimmeridge Clay, Kimmeridge, presented by me to the British Museum.

Plesiosaurus brachyspondylus, Owen.

The remains of this species, consisting of vertebræ only, have been found in the Kimmeridge Clay in the neighbourhood of Weymouth. The articular surfaces of the vertebræ are very slightly concave with a small round depression, but no convex rising at the centre. The vertebræ of the fore part of the neck are more compressed longitudinally than those of the hind part towards the trunk, where they regain more of the ordinary Plesiosaurian proportions. Sir R. Owen concludes that Ples. brachyspondylus had a large and heavy head.

Plesiosaurus Manselii, Hulke.

This species is described by Mr. Hulke in the twenty-sixth volume of the "Quarterly Journal of the Geological Society" on the evidence of 86 vertebræ, the left humerus and femur, the distal ends of the right humerus and femur, coracoid, ribs, and phalangal bones. Although several of the vertebræ are, missing the united length of the rest, including the anchylosed axis and atlas, which are preserved, is eighteen feet; the ribs are flattened, rough at their extremities, and correspond exactly with the projecting processes of the dorsal vertebræ; the length of the neck cannot be ascertained with any certainty, as several vertebræ from near the head and the trunk are missing, but the combined length of those preserved is five feet. The length of the humerus is two feet

five and a-half inches. This bone is much flattened out at its distal Thefemur, which is longer than the humerus, has three flattened angular bones articulating with the distal end, which has three corresponding notches to receive them; these bones meet the tarsal bones of the paddle. The coracoids are firmly joined to one another and lengthened out transversely to the axis of the trunk. The length of the neck removes all doubt of its being a Plesiosaur, to which some physical peculiarities might have given rise, such as the superior relative length and massiveness of the humerus and femur. which latter has a well developed trochanter for the attachment of muscles, the lengthening out of the tibia and fibula with a third (supernumerary) bone transversely so as to give fuller play to the swimming powers of the owner. In the summary of his able paper Mr. Hulke expresses an opinion that the departure of this Saurian from the Plesiosaurian type might warrant its removal to a separate genus.

PLESIOSAURUS CONYBEARI, Sollas.

The nearly complete and very fine specimen of this Plesiosaurus was found in the Ammonites obtusus zone, at Black Ven in the Lower Lias near Charmouth. The length of the skull is about eighteen inches. Teeth slender, conical, slightly recurved, and the crowns finely striated below the base, varying greatly in size, the largest being near the premaxillary suture, behind this they begin to diminish in size, while those further back dwindle to pointed tubercles; there are about 20 on each side of the upper-jaw. There is a continuous series of 66 vertebræ, of which thirty-eight are cervical, twenty-one dorsal, two sacral, and only five caudal, of which several are missing. The length of the neck is six feet eleven inches; the humerus is larger than the femur, in which respect it resembles *Ples. macromus*.

PLESIOSAURUS PLICATUS, Phillips.

Terminal faces of the vertebræ very gently concave, in some cases appearing almost plane. Vertebræ only of this species have as yet been found—Kimmeridge Clay, Weymouth, Nos. 44636, 41955, 41956, British Museum—unless an extensive series of

Plesiosaurian remains belonging to one individual, rescued through the intelligent supervision of our fellow member, Nelson Richardson, Esq., and Mrs. Richardson, of Monte Video House, Chickerel, from a bed of Oxford clay near Weymouth can be referred to this species, and of which I have very little doubt. Nearly the whole of the spinal column is preserved. The neck is extremely long, the bones of which decrease in size as they approach the head, which is missing; the axis is not anchylosed to the atlas, whose anterior articular surface is a cup capable of receiving an occipital condyle of small dimensions not larger than a boy's marble. united lengths of all the vertebræ are eight feet three inches, and allowing for the absence of some dorsal vertebræ, the original length of the animal could not be less than nine or ten feet from the snout to the tip of the tail, which was short. Many of the dorsal vertebræ have preserved their anchylosed neuropophyses and perpendicular neural spine. One has the pleurapophysis attached to the centrum, but not anchylosed, and a caudal vertebra has retained both neuropophyses, which stretch downward posteriorly at a very low angle. The terminal faces of the centra are elliptical, broader than they are long, very slightly concave and in some almost plane. Both the fore and hind limbs are nearly complete; the femur, which is the largest, measures thirteen and a-half inches in length and seven and a-half in breadth at its proximal end. Ulnæ, radii, tibiæ, fibulæ, carpals, tarsals, phalanges, portions of the coracoid, scapula, ilia, ischia, a large series of ribs and 72 cervical, dorsal, and caudal vertebræ leave but little of this headless trunk unrecovered. I hope this interesting fossil may ere long be described by Mr. Hulke.

The above will shew what a valuable acquisition Mr. and Mrs. Richardson have made to the Palæontology of the county.

PLESIOSAURUS CARINATUS, Phillips.

A small species with neat well-defined vertebræ. The articulating faces elliptical, plain, pitted in the centre. Represented by vertebræ. Oyster Bed, Portland. (British Museum, No. 41216, 41238, 41405, 45904.)

HUMERUS sp.

Swanage. Nos. 2174 and 21979, British Museum.

A large series of fossil bones, mostly Ichthyosaurian and Plesiosaurian from the Kimmeridge clay beds of Gillingham, have been kindly deposited in the County Museum by our fellow member, R. Freame, Esq. Being almost entirely hidden in large masses of hard stone, containing much pyrites, they cannot easily be identified and relegated to their proper specific places. It will require much care and skill to extricate them from the matrix, which will be done when means and opportunity allow.

GENUS PLIOSAURUS, Owen.

This genus is closely allied to Plesiosaurus, but differs in its enormous head and extremely short neck. It has a limited vertical range in Great Britain, from the Oxford Clay to the Portland Beds inclusive. Its remains, however, have been found in the Cretaceous beds of North America. Detached portions only of the skeleton have as yet been recovered. It can be identified better by its trihedral-shaped tooth than by any other character, so similar is it to Plesiosaurus. The cervical vertebræ increase in breadth and depth as they recede from the head, and assume the Plesiosaurian type.

PLIOSAURUS GRANDIS, Owen.

Crown of the teeth subtrihedral, the outer side smooth and slightly convex with an elevated ridge at each border; the other two sides, which are not separated from each other by a ridge or border, are also convex, having coarse longitudinal striæ. A tooth from Kimmeridge which I presented to the British Museum, the cast of which is in our County Museum, is twelve inches long from the point of the crown to the bottom of the dilated root, which is unusually perfect, the absorbing effect of the successional tooth not having commenced. Its gigantic dimensions give a good idea of the size and destructive power of the jaw which contained it. Besides the teeth the generic character of Pliosaurus is shown by the vertebræ, which somewhat resemble those of Ichthyosaurus

in their extreme shortness as compared with depth and breadth, the length near the head being only one and a-half inch. most complete example of the head of a Pliosaurus which has as yet been met with was found in the Kimmeridge Clays of Kimmeridge, which I had the pleasure of presenting to the British Museum, as well as the lower-jaw of the next species, Pl. trochanterius. It is five feet five inches long from the muzzle to the proximal end of the jaw in a straight line and five feet eleven inches if the outer curve is followed. There are about twentyseven or twenty-nine alveoli on each side of the upper-jaw and twenty-five or twenty-six on the lower, of which five on each side constitute the premaxillaries; in some of the alveoli the summits of the crowns of several successional teeth appear. bony palate is perfect except in the palato-nares region, and the symphysis of the lower jaw is brought forward far beyond that of Pl. trochanterius, which extends back to about the twelfth alveolar.

PLIOSAURUS TROCHANTERIUS, Owen.

This species is so named by Sir R. Owen on account of the humerus and femur having a trochanterian ridge, which extends some way down the shafts of each. In addition to this deviation it is also conspicuous in the greater proportion of the teeth being lodged in the symphysal part of the jaw. Some years ago I recovered from the cliffs of Kimmeridge portions of the remains of two individuals of this species, one an entire lower-jaw containing fourteen sockets in each ramus, ten of which occupy the symphysal part. It measures four feet two inches in length and two feet two inches in breadth where it articulates with the skull. upper-jaw escaped my search, but I found the posterior part of the cranium, shewing the condyle, which is two inches eight lines in basal diameter, and the foramen magnum, which is one inch three The occiput is traversed longitudinally by a high ridge slightly expanding below. Presented by me to the British Museum.

PLIOSAURUS PORTLANDICUS, Owen.

Sir Richard Owen founded this species upon a femur, together with other bones of the paddle, obtained from the Portland stone, Portland, which is higher up in the series than the bed from which the two former were procured. It is the first and only evidence of the genus in so high an horizon. The femur has the usual plesiosauroid character; at the distal end is a row of two bones, representing the fibula and tibia and a depression in the suture, indicative of a third bone.

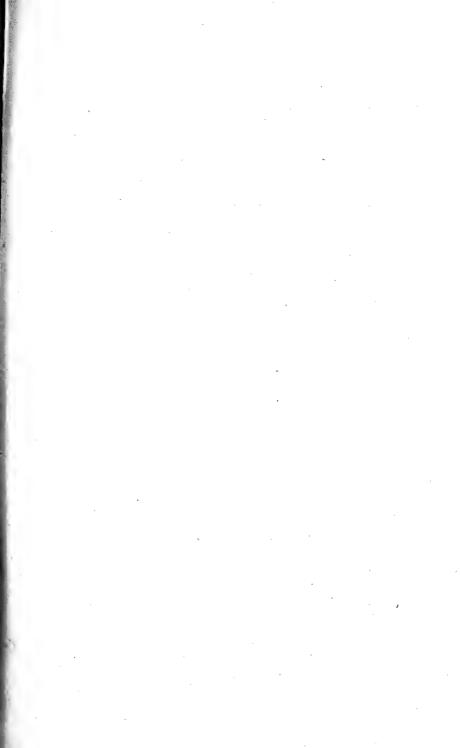
PLIOSAURUS GAMMA, Owen.

From the Oxford Clay, near Weymouth. Named by Sir R. Owen, from a series of vertebre—cervical, dorsal, and caudal.

The cervicals are extremely short, being only 1.20 inches in length, 3.05 inches in breadth, and 2.60 inches in height. They differ from the rest of this genus in the apparent straightness of the lower edge, caused by the very low position of the cicatrices, which are triple, the middle one deeply excavated; the articulating surfaces are gently concave and rounded at the edges. There are a few vertebræ of this species in the cases of the British Museum.

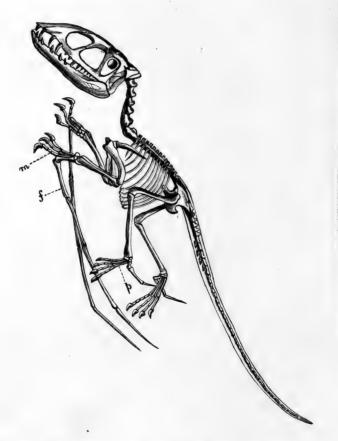
ORDER PTEROSAURIA, Owen.

This Order comprises a remarkable family of flying reptiles, which combines many peculiarities in their extraordinary and exceptional structure. The centra of the vertebræ are concave in front, the sternum keeled; teeth implanted in distinct sockets, absent or partially so in some genera, in which case the jaws appear to have had a horny sheath like a bird; the eye furnished with sclerotic plates. The apparatus for flight was in some respects similar to that of the Bat. Impressions of the sheets of skin have been preserved, which its long strong fifth finger supported, but no trace of hair or protecting feathers. Most of the bones are hollow and capable of being filled with air for buoyancy. The sacrum is formed of from three to six anchylosed vertebræ. Pterosaurians are exclusively Mesozoic, ranging from the Lower Lias to the Middle Chalk.





Restoration of Rhamphorhynchus phyllurus (Marsh), one-seventh natural size.



Skeleton of $Dimorphodon\ macronyx,$ Owen. L. Lias, Lyme Regis, Dorset. $m\!=\!$ manus; $f\!=\!$ wing-finger; $p\!=\!$ foot.

GENUS DORATORHYNCHUS, Seeley.

Doratorhynchus validus, Seeley.

Pterodactulus validus, Owen.

Through a fortunate occurrence Professor H. G. Seeley procured a portion of the lower-jaw, and one vertebra of this flying reptile from the Purbeck beds, at Langton, near Swanage. Isolated bones are occasionally met with in this locality, but insufficient to assign to them a generic or specific place. Professor Seeley places it under a new genus on account of the dissimilarity of its compressed elongated many-toothed spear-shaped flattened jaw to Pterodactylus. The teeth, which are placed in shallow sockets, are vertical at the posterior part of the jaw, gradually becoming more inclined as they approach the front, where they protrude horizontally; the margin of each socket has an elevated rim. There are no less than seven teeth within the space of an inch; but this closepacking is not uniform, some of the interspaces being as wide as one of the teeth. A similar deviation from the dental type occurs in some species of Plesiosaurus. The jaw, as much of it as is preserved, measures $12\frac{1}{4}$ inches in length. The symphysis is well preserved and extends to five inches. The vertebra, which is four inches and a quarter long, is only three-quarters of an inch wide in front and slightly more so behind. It is apparently concave and shallow before, and the posterior articulation is nearly flat. The crushed condition of the bone, however, renders its exact character uncertain. In discussing the question as to which part of the skeleton this bone belongs, Professor Seeley is inclined to regard it as cervical from the analogy of Pterodactylus longirostris, whose cervical vertebræ enlarged six diameters closely resemble this type.

A Pterosaurian finger-bone from the Feather-bed, Middle Purbecks, Langton, which I gave to the County Museum, may possibly belong to Doratorhynchus; it agrees in its dimensions with Professor Seeley's description.

GENUS DIMORPHODON, Owen. DIMORPHODON MACRONYX, Buckland.

Portions of three of these remarkable volant Reptiles sufficient to

afford a perfect knowledge of the animal's structure have been found in the Lower Lias of Lyme Regis and nowhere else. The head is disproportionately large as compared with the rest of the body, and at the same time exhibits a remarkable economy of material to aid the animal in its aërial flight. The upper-jaw is armed with long, slender, sharp-pointed laniaries, and no small ones as in the lower-jaw; eleven on each side, at wide intervals from each The lower-jaw has only four or five laniaries in the forepart of each ramus, implanted in distinct sockets, with a series of small close-set teeth resembling those of fish. The cranial portion of the skull is extremely small; the rest consists of large and powerful jaws, resembling no other Pterosaurian The neck is short and inflexible, composed of seven vertebræ, of a thickness and strength proportionate to the size of the head and sufficient to overcome and bear away its prey. It appears to have had five or six sacral and about thirty caudal vertebræ. The length of tail was twenty-one inches, which was stiff and capable of sustaining the membrane. The fingers had three intermediate phalanges each, and bore claws; the wing-finger was the longest and formed the upper support of the wing. The metatarsals of four of the toes of the hind-foot were long and slender; the fifth probably supported the wing when expanded, hence the necessity of greater strength and thickness of bone.

GENUS PTERODACTYLUS, Cuvier.

This Genus, excepting the largeness of the head and length of neck, strongly resembles the Bat in the general proportions of the body and the modification of the fore-limb, but a closer inspection shews its affinities to be rather reptilian. The wing-finger had four phalanges. The jaw had teeth to the extremity, which were long and slender. The tail was short and moveable. Judging from the form of the skull, the brain-case was small and rounded, similar to that of a bird. It joined the neck beneath, and the nasal opening was just in front of the orbit; both of these are Avian characteristics. In some species the extremities of the upper and lower jaws

appear to have been covered with horn, and the eyes of some had sclerotic plates,; the sternum had a crested ridge down its centre. The scapula and coracoids resemble those of some birds. The long bones, vertebræ, and some parts of the skull have aircavities. There is little doubt that the genus had the power of sustained flight.

Pterodactylus Marderi, Owen.

This species is determined by Sir R. Owen from the proximal portion of the right humerus, which shews the articular surface.

—From the Lower Lias of Lyme Regis, and named from the well-known collector of Fossil Reptiles residing at Lyme.

Pterodactylus Pleydellii, Owen.

Determined by Sir R. Owen from the distal portion of the left humerus and proximal end of a phalange of the wing-finger.— From the Kimmeridge Clay, Kimmeridge.

Pterodactylus Manselii, Owen.

From the same bed and locality as the preceding, comprising the proximal portion of the left humerus, including the head or articular surface, also the proximal end of proximal phalanx of the wing-finger. The above fragments of both species I presented to the British Museum.

Pterodactylus incert. sp.

Including the carpal bones of two species and the phalanx of the wing-finger of one, determined by Sir R. Owen.—From the Kimmeridge Clay, Weymouth.

ORDER DEINOSAURIA, Owen.

The Deinosauria comprise a group of extinct forms, which are, in some respects, intermediate in structure between the Cursorial birds and the typical reptiles. They are, for the most part, of gigantic size, attaining, in some species, a length of upwards of forty feet. Unlike other reptiles, the sacrum consists of from four to six vertebræ, as with Aves and Mammalia. The ilia are prolonged forwards in front of the acetabulum (the cup which receives the head of the thigh bone), as withbirds, and in a backward

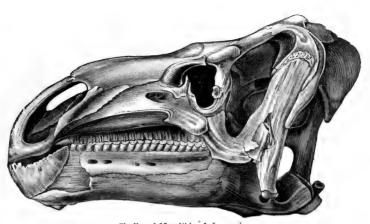
direction behind it, as with reptiles. The ischia are greatly elongated and inclined backwards, and are united in a symphysis. Of this Order Iguanodon, Megalosaurus, Scelidosaurus (Ischyrosaurus) and Cetiosaurus *Ornithopsis* (?) have been met with in Dorsetshire.

GENUS IGUANODON.

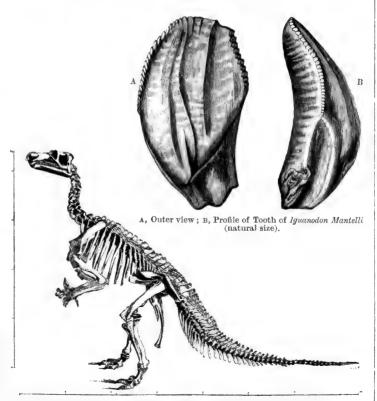
The distribution of this remarkable family ranges from the Kimmeridge Clay to the Upper Greensand. It flourished preeminently during the Wealden period, and has been met with in England, Belgium, North of France, Germany, and Austria. Three well established species have been found in England—Mantellii, Prestwichii, and Seelyi, which latter may possibly prove to be the I. bernissartensis of Boulenger; both have been found in a remarkable Wealden deposit at Bernissart, Belgium. Through the labours of M. Dollo, the Assistant Naturalist of the National Museum, Brussels, we have so full a knowledge of this Dinosaur that there remains only a few and not very important details to make it complete. The nearly perfect skeletons of Iguanodon Mantellii, and bernissartensis are admirably displayed in the Court of the Brussels Museum; the latter stands about fourteen feet nine inches in a nearly erect posture.

IGUANODON MANTELLII, Mantell.

The skull of this species is three times longer than its breadth; the usually large reptilian fossæ are reduced to a long narrow slit. Mr. Hulke shows a departure from the reptilian type in the brainchamber being wholly of bone, and not partly membranous; also in the obliteration of the sutures. Bird-like, it has a small head, and a long neck. The teeth are very remarkable, resembling those of the existing Iguana in their blade-like form and serrate edges, but differing from it and all other extant reptiles in the internal structure of the teeth, and as they used them for mastication as well as for cutting, the crowns becoming worn down, were constantly replaced by a fresh supply. The front part of the jaws are destitute of teeth. The symphysical end of the mandible hollowed out like a parrot's, and trough-like was surmounted by a distinct cone, the



Skull and Mandible of Iguanodon.



Complete Skeleton of Iguanodon. (Actual length of animal about 25 feet).



fret border of which, denticulate, may have been sheathed with horn as in turtles. The quadrate bone is long and stout. The exterior nares are capacious. The orbits are elliptic in shape. the horizontal diameter exceeding the vertical. the jaws of all the recovered heads being closed, the inside of the mouth has never as yet come under complete examination; it has been surmised, however, from the evidence of a few detached and broken fragments, that the internal nares are placed far back in the palate. The fore-limb is half the length of the hind; the humerus is relatively short; the manus long in proportion, being one fourth the length of the limb; the last phalanx of the inner-digit is spur-like; the metacarpals are narrow and compressed laterally. The sacrum consists of five anchylosed vertebræ. The ilium projects considerably beyond its articulation with the head of the femur, which has an inner trochanter near the centre of the shaft, from which probably originated a set of muscles to strengthen and give motion to its massive tail, and to aid its progress through the water. aided the animal to walk upright, not so much as a support but as a compensatory balance to structural hindrances when on land. prints of animals have been frequently noticed in the Wealden beds of Sussex, the Isle of Wight, and Swanage as early as 1854. Mr. Beckles named them Ornithoidichnites, supposing them to be He describes them as in pairs or groups, the footprints of birds. one in advance of the other and uniform in direction, and at an interval of about three feet four inches from each other. largest was 21 inches long and invariably trifid, the centre toe the longest. Conjectures soon arose that they were foot-prints of the Iguanodon, which are now fully confirmed by M. Dollo, who, after comparing the hind feet of Iguanodon Mantellii with the natural casts preserved by Mr. Beckles, concludes that no other Wealden Dinosaur could have produced these tridactyle impres-The Iguanodon was probably more aquatic than the sions. Crocodile, living in the swampy marshes of the Wealden rivers; being graminivorous it would have enemies, and be subject to the

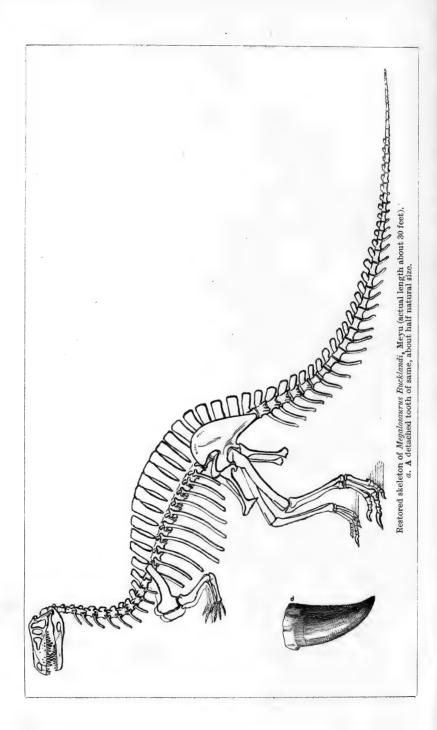
attacks of the carnivores of that date; when standing upright above the reeds and grass it could command a view of what was going on around, and either escape by flight, or boldly meet the enemy by attacking it with the strong piercing spurs with which its fore-feet were armed. Dissociated remains as well as foot-prints have been recovered in the Wealden beds of Swanage and Worbarrow. The Iguanodon Mantellii in the Brussels Museum, which is in almost an upright position, stands 12 feet 6 inches.

GENUS SCELIDOSAURUS, Owen.

Scelidosaurus Harrisonii, Owen.

One of the characteristic features of this species is the short proportion of the skull posterior to the orbits, which are subcircular, nearly vertical, and prominent; in these respects it resembles the The teeth of the upper jaw overlap and conceal those of the lower; they are small, numerous, and close-set, and, implanted in sockets, there were no less than nineteen in a portion of the upper jaw, measuring four inches. The crowns of the front-teeth, which are compressed and serrate, are coated with polished enamel of jet blackness, and worked obliquely with those of the lower-jaw, scissor-like. The sacrum consists of four vertebræ, the neck of six or seven, the dorsal of sixteen, and the lumbar of one. The total length is about five feet; the tail, which is five feet eight inches, has thirty-five vertebræ; allowing one foot for the head, the total length of the animal is twelve feet. The fifth toe of the hind foot is abortive, and the first is disproportionately short, showing a tendency to the tridactyle type of the hind-foot, and which is completed in its Wealden successor, the Iguanodon. foot of Scelidosaurus, which is thirteen inches six lines long, would leave an impression of four claws; the length of the tibia is twelve inches, of the femur sixteen inches, or the total length of the hind limb three feet four inches.—From the Lower Lias of Lyme Regis.





GENUS MEGALOSAURUS, Buckland. MEGALOSAURUS BUCKLANDII, Buckland.

Poikilopleuron Bucklandii, E. E. Deslongchamps.

This gigantic and formidable Dinosaur, whose length is estimated at upwards of thirty feet and whose femur and tibia each measured three feet in length, was terrestrial, the the larger bones having a medullary cavity, and the head of the femur was set nearly at right angles to the shaft. powerful and pointed cutting serrated teeth prove it to have been carnivorous. The first remains of it, consisting of a fragment of the lower jaw, a femur, a series of fine vertebræ of the trunk, a few ribs, and an ilium, were found at Stonesfield, near Woodstock. Since then other portions have been recovered. There is a peculiarity in the sacrum, which consists of five vertebræ, which occurs in no mammal, but is repeated in the Class of Aves, and are much constricted in the middle; the Ischia are long and slender, resembling the Iguanodon in this respect. The great trochanter of the femur is broad, the situation of the inner trochanter on the shaft is higher up than in Iguanodon. no evidence its having had an exoskeleton. The knowledge of the structure of the skull was very defective up to the year 1869. Like the jaws of existing lizards, the outer and inner walls of the ramus are unequal, rendering the alveolar groove incapable of receiving the teeth, excepting in the early stages of their development. teeth are set in distinct sockets, the crowns are smooth, polished, compressed, curved, and their edges minutely serrate. The forelimbs are very much smaller than the hind limbs.

In the year 1882 Edward Cleminshaw, Esq., M.A., F.G.S., of Greenhill, Sherborne, observed imbedded fossils in three blocks of stone from the neighbouring Inferior Oolite quarries of the neighbourhood, which proved to be portions of the upper and lower jaws of the Megalosaurus, including the facial part of the skull, one foot three inches and a-quarter in length. Ten teeth are preserved in the maxillary bone, between some of which are crowns of successional or undeveloped teeth. Sir Richard Owen, whose description of this fossil is in the thirty-ninth volume of the "Quarterly Journal of the Geological Society," p. 337, observed some very thin long plates lying within the orbit, on the same slab which contained the teeth and bones, which he thinks probable to have been sclerotic plates to strengthen the corneal part of the eye-ball, which was small. The orbit, which is of great relative size and elliptic instead of the usual circular form, finds its nearest approach amongst existing Saurians in the large carnivorous Varanians. Besides the above described portions there were two others of equal interest, although more fragmentary—part of the left mandibular ramus, containing eight teeth and a small portion of the upper and lower jaw, with teeth more or less broken away. Sir R. Owen calculates the total length of the skull would not be less than two feet six inches.

GENUS ORNITHOPSIS, H. G. Seeley.

Synonym—Eucamerotus, *Hulke*; Cetiosaurus, *Owen*, partim; Cetiosaurus, *Phillip*, partim; Chondrosteosaurus, *Owen*, partim; Bothrospondylus, *Owen*, partim; Ischyrosaurus, *Hulke*; Gigantosaurus, *H. G. Seeley*.

A critical and searching examination of some Deinosaurian remains from the Upper Oolites, Wealden and Cretaceous beds, by Mr. Hulke, Mr. Lydekker, and Professor Seeley, has cleared away many of the misapprehensions which obstructed that clearer knowledge of *Ornithopsis* we now have through the efforts of these three eminent palæontologists. By a correlation of its bones (which are invariably detached and fragmentary), pelvis, coracoids, ribs, femora, humeri, and the characteristic cancellated opisthocoelous large chambered centra, much of the structure of Ornithopsis is known. As early as 1870 Mr. Hulke foreshadowed the possibility that (*Eucamerotus*), *Ornithopsis*, *Cetiosaurus*, *Omosaurus*, with perhaps *Streptospondylus* Cuvier, were members of one genus, characterised by the trunk vertebræ, bearing a complex neural arch and having a large deep hollow in the lateral part of the centrum.

These vacuities of the centra must have lightened the weight of the spinal column and adapted the animal to an amphibious life.

Ornithopsis Leedsii, Lydekker.* Ceteosaurus humerocristatus, Hulke.

Like the Iguanodon and Megalosaurus, all the articulations of the limb bones allow gliding movement; they have no intervening cartilaginous bond as with Ichthyosaurus and other Enaliosaurians, adapting them to be both flexible and powerful instruments for swimming, but suited for terrestrial progression. The free movement of the head of the femur in the hip-cup and the large claws strengthen this view. A humerus of this genus from the Kimmeridge Clay of Weymouth is described by Mr. Hulke in vol. xxx. of the "Quarterly Journal of the Geological Society," p. 16, with a plate. The articular surfaces of both extremities are wanting; without these the length is four feet six inches (when perfect it must have been five feet three inches). Its girth at the middle of the shaft is one foot nine inches.

Ornithopsis Manselii, Lydekker. Ischyrosaurus Manselii, Hulke.

Determined by Mr. Hulke upon the evidence of a humerus I found in the Kimmeridge Clays of Kimmeridge, and presented to the British Museum. Its length is two feet seven inches, and girth near the middle of the shaft one foot one inch, at its proximal end, which joins the shoulder, two feet. It has no medullary cavity. Mr. Hulke tells me he thinks it probable that both this and the preceding will be found to be identical with Ornithopsis, found in the Wealden of the Isle of Wight and in the Kimmeridge Clay near Peterborough. Its correspondence with the American fossil Brontosaurus of O. E. Marsh may ultimately prove Ornithopsis also to be a synonym.

^{*} For the grounds on which this and the next species are now referred to Ornithopsis consult Mr. Lydekker's recently published paper and the "Quarterly Journal Geological Society," vol. xliv., part 1, p. 46, 1 Feb., 1888.

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Sherborne Inf. Oolite Kimmeridge Kim. Clay Weymouth Kim. Clay		SCELIDOSAURUS, Owen 1861	Charmouth	Lower Lias	Det. pl. 1-3, 12/2, 50pp. 5, pl. 1, pl. 1-2, 12/14. Det. constraint pl. 105, pl. 33-37, 1858 Owen, Pal. Soc. Mon. Foss. Rep., Lias Form., pt. 1, pl. 1-6, 1891, pt. 2, pl. 1, pl. 1-1, 1863.	accompanied by 2 pages and a wood- tur. British Museum British Museum
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	•		Weymouth		Q.J.G.S., Hulke, vol. xxx., p. 16, p. 2, 1874	British Museum = Cetiosaurus humerocristatus, Hulke, Lydekker, Q.J.G.S., vol. xiiv., pp. 57, 58, 1888. British Museum





















Porset Seventeenth Century Tokens.

By J. S. UDAL, F.R. Hist. Soc. (of the Inner Temple).

EFORE I deal more specifically with the tokens of this particular county, I should like to say a few general words as to the introduction of these tokens into the several counties, and to the circumstances which led to their issue. This subject has been well treated of in Snelling's

View of the Copper Coinage of England, and Boyne's Tokens of the Seventeenth Century; whilst some very useful and instructive remarks on the general history of tokens are contained in the introduction to the third and last edition of Hutchins's History of Dorset. From these authorities I quote at considerable length in making the following remarks upon the general history of the subject.

The small coinage of England from the earliest times was of silver, and was coined as low in value as a penny, three farthings, half-penny, and farthing. They began to be coined in the time of Edward I. and continued to be minted in this manner, the half-penny existing down to the time of Charles II. These were all in common use; but as every rise in the denomination of our money lessened the weight of these pieces, they became, from their small size and weight extremely inconvenient and easily lost.

It was found to be necessary that there should be money of small value for the use of the market and the poorer sort of subjects, as of the larger species for the other purposes of trade. Small change of a more useful size and weight was therefore required, even though it must consist of baser metal. Many petitions were presented to Queen Elizabeth on this subject, but owing to the difficulties the Queen had experienced in restoring the standard of silver money, which had been much debased during the extravagant reign of Henry VIII. (as one may easily see by merely handling one of the groats of that reign), her aversion to a base currency was so great that the project was abandoned without trial.

In the succeeding reign many proposals were made to the Crown for striking farthing tokens, the reasons assigned being the infringement of the Royal prerogative by private persons making them, the loss which the poor sustained by their not being universally current, and the want of them to bestow in charity. In the year 1613 King James I. delegated his prerogative of striking copper money to John Stanhope, Baron Harington, for a money consideration; the patent, however, being granted for farthings only. On the accession of Charles I. to the throne in 1625 the patent for the coinage of farthings was renewed. privilege was grossly abused by the patentees, who issued them in unreasonable quantities, and of a merely nominal intrinsic value, the coins weighing only six grains each. In a short time the whole kingdom, and more especially the home counties, were so burdened with them that in many places scarcely any silver or gold coin was left, the currency consisting entirely of farthing tokens.

The accumulation of the patent farthings in the hands of small tradesmen caused the latter so great a loss from the refusal of the patentees to rechange them, that in 1644, in consequence of the public clamour, they were suppressed by the House of Commons, which ordered that they should be rechanged from money raised upon the patentees' estates. The death of the King put an end to the exclusive prerogative of coining copper and brass; the tokens

which are now known as 17th century tokens, and were the subject of Boyne's work, immediately began to be issued, and were circulated without authority, and, as stated on some of them, for "necessary change." As they were received again by the issuer when presented they were far preferable to the patent farthings. The coining of the tokens seems to have been often performed by the issuers themselves, and Boyne mentions the discovery, and gives a description of a token-press and dies, taken from an account in the Gentleman's Magazine, vol. xxvii., p. 499. For the convenience of rechanging the numerous varieties of tokens tradesmen kept boxes with several divisions, into which those of the various tradesmen and corporations were sorted, and when a sufficient number were collected they were returned to the issuers to be exchanged for silver.

There were upwards of a hundred market-towns, boroughs, and cities in England and Wales in which these tokens, called town-pieces, were struck, some of the denomination of a farthing, some of a half-penny. Of all the counties in England, Somerset is said to have struck the greatest number of town-pieces, there being some thirteen or fourteen cities and towns in it that coined them. Next to Somerset in number stands the county of Dorset, which coined eight, and which are more particularly alluded to hereafter.

The town-pieces of those places which are incorporated have commonly their arms on one side; and the non-incorporate a device of some kind, some with an inscription on one side, some on both. The tokens struck by private tradesmen and shopkeepers were either farthings, half-pennies, or pennies, but not so many of the last as of the two first. The tokens have for their type generally in the area (or field) on one side the tradesman's sign, consisting of merchant's marks, articles of dress, implements of trade, articles of domestic use, tavern signs, heraldic signs, animals, &c.; and on the other, the initial letters of his Christian and surname, and on many is added a third for that of his wife; some instead thereof have the date of the year; others his trade, or the name of the place where he lived; some again have initial letters

on both sides, and others have names at length. The legend round them contains the name of the person, and that of his place of residence, sometimes his trade, sometimes the value, where it is not in the area or field.

These tokens were generally of copper or brass; a leaden one being rarely to be met with.

The earliest dates are 1648, 1649, and 1650, but, according to Boyne, tokens of these years are scarce; after 1650 until 1660 they are more plentiful, and nearly the whole of them are farthings; half-pennies are few in number, and there are no pennies. Those of a date subsequent to the Restoration of Charles II. are the most abundant; half-pennies are very common among them, and there are a good number of pennies. The years 1665 to 1669 are the most prolific, particularly 1666 (the year of the Great Fire of London), whilst in 1670, 1671, and 1672 they again become scarce, of the latter year there being very few. From this it will be seen that these tokens were in circulation exactly a quarter of a century; they originated in a public necessity, but in the end became a nuisance. They were issued by nearly every tradesman as a kind of advertisement, and being only payable at the shop of the issuer they were very inconvenient. The Government had for some time intended the circulation of Royal copper money, as we learn from Boyne that pattern-pieces of half-pennies and farthings were issued in the year 1665, but it was not until 1672 that the farthings of Charles II. of a similar size to those of the present day were ready for circulation. Tradesmen's tokens were then at once put down by a stringent Royal Proclamation dated 16th August, 1672, which Boyne gives in full in the introduction to his work. This put a stop to the circulation of tradesmen's tokens almost immediately; a few attempts were made to continue them, but the threat of Government proceedings against the offenders effectually put these down and we hear no more of them. Ireland, which then, as now, would always seem to have been the last in obeying the law, a few were circulated some years later; the latest date in that country being 1679.

We now come to the tokens of the county of Dorset, which are "principally farthings, the half-pennies are very few in number, "and there are no pennies." Such is the statement of Boyne in his book, which was issued in 1858, but only a year or two ago I thought I had come across a veritable Dorset penny token. is in the Dorset County Museum at Dorchester a penny token, which is said to have been found in the neighbourhood, having on the obverse GIDEON HAYNE, and in the centre the arms of the Hayne family (on a fess three bezants; in chief a greyhound courant—the tinctures not being decipherable)—and on the reverse MARCHANT IN TRIN, and in the centre G.I.H. and 1^{D.} below. On the strength of this I was about to include this one among the the tokens of the town of Dorchester, taking TRIN to refer to Holy Trinity parish, notwithstanding the suspiciously Irish nature of the word MARCHANT, because the family of Hayne exists in the immediate neighbourhood of Dorchester at the present time. and the very name of the issuer of this token occurs in the Heraldic Visitation of the County of Dorset for 1623, as being five years of age at that time, and the son and heir of Morgan Hayne, of Dorchester. The arms there given are, no doubt, the same as those on the token; argent, on a fess gules, three plates; in chief, a greyhound courant azure. I find, however, that Boyne has assigned this token to Trim co: Meath, in Ireland (see No. 561, p. 573), and, no doubt, rightly so, as I have been informed it is by no means an uncommon token there, and that members of the Hayne family are yet to be found in co: Meath, their ancestor having, no doubt, migrated from Dorchester in the 17th century. But though an Irish token it has for the reasons above stated a strong Dorset connection, which must plead as an excuse for this discussion.

Although, therefore, it would appear that we have no claim to the possession of a penny token in the county, Dorset (as I have said before) is unusually rich in town-pieces; the boroughs that issued tokens in their corporate capacity being Blandford, Dorchester, Lyme Regis, Poole, Shaftesbury, Sherborne, Weymouth, and Wimborne. These town-farthings vary somewhat in size, but are generally as large as the half-pennies of private traders. There is, however, in the Dorset County Museum a variety of the Dorchester town-piece of the size of an ordinary farthing token, only much thicker. It is the only one I have ever met with, and I should imagine it is probably unique. There were several pairs of dies used in striking the Dorchester town-pieces, but with this exception, they were all about the usual size. The town-pieces all bear the same date, 1669, with the exception of Poole, which is dated 1667, thus showing that the corporations did not follow the example of the private issuers for many years. To Poole, therefore, belongs the honour of being by two years the first of the corporate towns in providing for the needs of the town in the way of small and "necessary change." That such a course was not decided upon without grave consideration may be gathered from the entries in the minutes contained in the public records of the various corporations, which authorised the issue and the quantity of these town-farthings. These orders, so far as they are known to me, I will now proceed to give, for as the town-pieces are of greater interest than, and very few in comparison with, the issues of private persons, I will deal with them each in turn, taking them in alphahetical order, beginning with Blandford.

To Blandford must be accorded the distinction Blandford. of having issued corporation farthings in 1623, if we may judge from an entry in Mrs. Farquharson's MS. memoranda, mentioned in Hutchins (i., 221.)

"1623. This year the corporation accounted for farthings belonging to this town."

If the date is correctly given—and, coming between an entry in 1617 and another in 1625, there seems no reason to doubt it—this entry must refer to the farthings issued under the patent granted by King James I. to John Stanhope, Baron Harington, which I have before alluded to. But again in 1673 the following entry appears:—

"The corporation farthings was returned in to the value of £2 18s., and placed in the council house."

This, no doubt, was the result of the Royal proclamation issued in 1672, whereby the further circulation of these tokens was put an end to as before mentioned.

The order for the Dorchester town-piece appears

Dorchester. in the following entry in the minutes contained in the municipal archives of the Borough:—

"J. Seward maio Feb: ye 5, 1668" (old style) [and seven others]. "It is ordered and desired yt Mr. Jasper Samwayes "one of this Company doe speedily procuer Twenty pounds "in copper farthings for ye beniffet of ye pore of this "Borough, and that ye Towne armes be engraven on one "side, and HD on ye other syde, and on ye side where ye "Towne Armes are to be ingraven, Round ye armes of "Dorchester, and on ye other side where HD be, Dor-"chester Farthing, and under HD ye date of ye Lord."

The initials H. D. may be intended, as Boyne observes, for Alexander Haviland, who was Mayor of Dorchester in 1669 when the token was issued, as no one with such initials appears in the municipal minutes at that time, but it is not a satisfactory conclusion to be obliged to come to, and I should feel grateful if any better one can be suggested.

We now come to Lyme Regis. From Roberts's Lyme Regis. Social History of the Southern Counties (pp. 203-204)—where are given engravings of the three tokens belonging to Lyme Regis—we learn that "the Cor"poration of Lyme ordered a barrel of Town ffarthings in 1669, "fourteen years after Amyell Hart had issued his token, and a "second barrel six months after. Both barrels of ffarthings cost "£45 8s. 3d. A profit of £8 is acknowledged to have been "realized, or $17\frac{1}{2}$ per cent., in the Mayor's accounts."

And Mr. Roberts goes on to say, quoting from Sydenham's *History of Poole*, that the corporation of Poole "exceeded this "rate of profit. They laid out 10l. and realized just cent. per cent."

Poole. The following order relating to the Poole town-piece appears in the corporation books of the borough, and was agreed upon at a common hall held 22nd August, 1667, and is here given in the abridged form adopted by Boyne.

"August 22nd, 1667. Moses Durell, Mayor, disbursed the "sum of Ten pounds for copper money with the stamp of "the Town Arms on them, and the inscription 'For the "Mayor of the Town and County of Poole,' and received "in farthings (four to the penny) nineteen pounds four "shillings, to be passed in exchange betwixt man and man "as current money until it shall be prohibited by His "Majesty's order. If not prohibited, the Mayor shall "transfer to his successor the sum of nine pounds four "shillings in current monies or the same farthings."

This order is given at greater length in Hutchins (i., 14), and is also mentioned in Sydenham's *History of Poole* (ed: 1839, pp. 135, 136). The arms as given on the token, however, do not quite represent the full armorial bearings of the Corporation of Poole, which are: barry of eight, sable and vert, over all a dolphin naiant argent; on a chief of the third, three escallops of the first. These were confirmed in 1579 by Robert Cooke, Clarencieux, and are allusive to the maritime situation of the town, and its patron saint St. James, whose symbol was the scallop-shell (Hutchins i., 21).

We now come to the last of the boroughs which Weymouth. issued any orders respecting their town-farthings—at least, so far as I have been able to ascertain—namely, Weymouth. Mr. H. J. Moule (the able and courteous curator of the County Museum) in his Catalogue of the Weymouth and Melcombe Regis Borough Records (ed: 1883, v. 62, p. 144) gives the following note relative to the issuing of this token:

"Order to lay out £10 on minting farthings 'for the Towne's "use and profit for the poore,' the 'superscription' to be 'a "W. ffarthing' on one side, and on the other 'ffor the "poore,' with the Town's Arms. Nov: 5, 1669."

In Ellis's History of Antiquities of Weymouth (ed. 1829) occurs

the following extract in greater detail from the corporation records, fol. 328:—

"Att a full Hall held on Friday, the fifth daye of Novembre, "1669, 21 Car. II. Regis, also yt ys agreede uppon, Thatt "Mister Deputie Maior bee pleased to laie out tenn pounds "in ffarthynges, for the townes use and profit of the poore, "the superscription on the one side to be 'A Waymouth "Ffarthyng,' and on the other syde 'For the Poore,' with "the Towne Armes."

Mr. Ellis adds that they must also have issued another, having on the obverse "A Weymouth Farthing for the Poor, 1669," and on the reverse "The Town Arms." He is not right in his supposition, however, for there was only one town-piece issued; the specific instructions of the corporation simply not being carried out.

The Boroughs generally do not appear to have troubled themselves very much about the issue of tokens by private individuals, and in only one instance can I find any notice taken of any such issue. This was in the case of Lawrence Righton, of Dorchester, who had issued a half-penny token, and an entry occurs in the Borough minutes referring directly to this token and putting him under terms to retake them at the same rate if they are put down or do not pass.

The earliest date of any Dorset token is 1650, that of Richard Olliver, of Poole, who is run very closely by John Feisher, of Evershot, and Zanchy Harvyn, of Milton Abbas, both dated 1651. It is somewhat unfortunate that I have not in my own collection nor have I ever myself met with any of these three unusually early ones for Dorset, and must therefore rely for the correctness of their dates upon Boyne's accuracy alone.

The latest date is 1671, borne by Edward Tizard of Poole, just one year later than the tokens of Robert Ekins and Thomas Flory, both of Wimborne, which are dated 1670. The great majority of the tokens it will be seen are dated at a period subsequent to the Restoration of Charles II., and, whether it can be considered as a sign of any want of attachment to the House of Stuart or not, it

is a curious fact that not one of them bears the name of Charles, and only one of them the name of James—that of James Studley, of Weymouth.

Though some, no doubt, of the Dorset tokens afford specimens of originality in design and execution, the great bulk of them does not appear to differ much from their fellows in other counties; consisting principally of private issues by tradesmen with their own names; their initials and those of their wives; their private marks and signs; and the arms of such of the great civic companies as would tend to show the various callings of the issuers.

Of these last the Grocer's Arms head the list by a large majority, appearing some two dozen times, with the Mercer's next with about half that quantity. These two callings seem to be far in excess of any of the others, clearly denoting what were the most common and popular trades amongst Dorset folk at that time; whilst there are some half-dozen instances of what may be termed tavern signs -symbols of a trade which at all events has not decreased in popularity at the present day. The instances where the issuers have borne their private arms are rare, being only met with in the tokens of Edward Harvey, of Corfe Castle; Simon Eyre, of Dorchester; Christopher Ware, of Shaftesbury; John Whetcombe, of Sherborne; and Robert Ekins, of Wimborne. The occupations of the various issuers, if we may judge from the symbols adopted, represent almost every imaginable calling, from a chandler to that of a warden of the King's School at Sherborne, in the person of John Whetcombe, of that town.

There are a few individual peculiarities existing in some of the tokens that are perhaps worth mentioning here. For instance, in that of Thomas Bagg, of Bridport, the name of the issuer, instead of being in the form of the usual legend, round the inner edge of the token, is in three straight lines across the field. This is the only token in Dorset so treated. Another unusual treatment appears in that of John Pitman, of Sherborne, in which the name of the *county* is given, instead, or without the addition, of that of any town or place in it. This, again, is the only one so

described. There are two or three instances in which the usual practice of placing the initials of the surname over those of the Christian names of the husband and wife has been departed from: e.g., those of John Swetnam, of Melcombe Regis; William Molby, of Sherborne; and James Cane, of Stalbridge. These are the only ones that I am aware of in which this has been done.*

The first person who would appear to have made a collection of Dorset tokens (at least of those that have now come into public hands) was the late Dr. Browne Willis, F.S.A., the eminent antiquary, who was born at Blandford in 1682 and died in 1760. He presented his collection of coins in 1741 to the University of Oxford, and amongst them his Dorset and other tokens. These are now in the Bodleian Library, where I have myself inspected them; but the Dorset ones do not consist of more than about thirty specimens, if I remember rightly.

Then there is the national collection in the British Museum; but at the time I first went to see them, some two or three years ago, they were practically inaccessible to those interested in the tokens of any particular county, owing to their being arranged solely in alphabetical order under the names of the *issuers* instead of *places*.

Surely the value and charm of such a collection lies not in the number of tokens issued by persons of any particular surname all over England, but in the living interest the people of any particular county or town take in these quaint evidences of a bye-gone age, and in the topographical associations that cling to the names of so many of these old issuers. Mr. R. S. Poole, the

^{*} Note.—Since writing this paper I have been favoured by Mr. A. Palmer, of Lyme Regis, with an inspection of a very interesting and curious token found amongst the rubbish during the restoration of the old parish church of Lyme. It bears the inscription LYME, 1653, and R.S. in the centre, on one side only, the other being perfectly plain or else worn away. It is the size of an ordinary farthing token and is made of some white metal, such as lead—which has now become hard—or pewter, and is the only token made of white metal in Dorset that I am aware of, and is in all probability absolutely unique.

courteous head of the coin department, however, saw at once the necessity for a more useful if not a more scientific arrangement of the large mass of tokens under his care, and proceeded without delay to put that arrangement into action; so that within a few months after my first visit to the British Museum I was able to thoroughly inspect those of the county of Dorset—a county which, coming early in the alphabet, was amongst the first to be rearranged. Long before this, no doubt, every other county has been similarly dealt with. Another outcome of this re-arrangement was the issue in 1885 by the British Museum authorities of a separate publication containing a list of all the 17th century tokens in the British Museum not already described in Boyne's work.

Whilst I am upon the subject of our national collections of tokens, I hope I may be pardoned when I say that I think it is a great pity that wider powers should not be given to those having the care and superintendence of our coin departments in dealing with private collectors and others wishing to exchange or purchase duplicates from them. I understand that it is the practice for them to be allowed to accumulate and then to be sold wholesale to the dealers. The authorities are not allowed to exchange or sell privately as occasion offers. I could, more than once, have offered a very liberal exchange of duplicates with the public authorities, but have been met with the above rule. It needs very little discrimination to infer what a considerable advantage would result to our public collections were this rule a little relaxed, and a little more latitude in this respect allowed to the heads of these departments. I understand that, as far as the Bodleian collection is concerned, an attempt has been recently made to pass a new statute to that effect, though as yet without success. It is to be hoped that those having authority over the disposition of our public collections will be led to deal more liberally with the coin-collecting section of the public; it will assuredly be as much to the ultimate advantage of the national depositories themselves, as it will be a decided boon to private collectors.

The principal authorities for Dorset tokens beyond the British Museum and the Bodleian collections are the three plates in the first volume of the third and last edition of Hutchins's History of Dorset, and the list of tokens that also appears therein. regard to the former, the first two plates were presented by Dr. Cuming, F.S.A., to whom our county historian was greatly indebted for his assistance in bringing out the first publication of his work in 1774. Two of the tokens, however, there described are wrongly classed amongst those of Dorset; namely, that of William Lodge, of Beare, and that of George Reeve, of Milton. It is clear that the first named should be Bedale, co. Yorks, and is so assigned by Boyne in his book. With regard to the latter, there might be more reason for doubt, but as the only Milton in Dorset of sufficient importance to have issued tokens was Milton Abbas, and as the full name appears on all the tokens known to have been issued there, I think Boyne was again right in assigning it to Milton, near Gravesend, co. Kent, which was a town of some importance at that time.

With regard to the list of tokens (by whom drawn up I know not) given in the last edition of Hutchins, though a more recent authority than Dr. Cuming's plates, it is drawn up so carelessly that no less than *eighty* mistakes or omissions have been corrected or filled in by myself in my own copy of Hutchins!

Beyond the materials to be obtained from public sources the late Mr. Boyne must have relied largely upon information afforded to him by private collectors and friends. He had besides a very fine collection of his own, and on the dispersal of that collection some few years ago I was enabled to secure those that he had belonging to the county of Dorset. This naturally gave a great impetus to my own collection, with the result that I was able to present the Dorset County Museum with close upon fifty of my duplicates that were new to it.

In conclusion I may say that an instance of the greater interest that is now taken in these old tokens of the seventeenth century, and in the people who issued them, and a proof that a new edition of Boyne's work may not unfairly be called for,* may be shewn by the fact that whereas in Dorsetshire alone Boyne recorded the existence of 141 tokens in 1858, I have been enabled, by adding new ones and fresh varieties of those already existing, to increase that number to 222, an addition of more than one-third.

J. S. UDAL.

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* NOTE.—I am happy to be able to state that there is every prospect of that new edition appearing before the year is out, as Mr. Williamson, of Guildford, with the help of several sub-editors, has had the work in hand for some time. I have promised to contribute, and have now completed, the section for the county of Dorset.





An Analysis of "The Celtic Tumuli of Porset," by Charles Warne, Csq., F.S.A.

By Dr. WAKE SMART. 1886.



N the following pages I purpose giving an analysis of the contents of 160 of the Tumuli described in Mr. Warne's work, "The Celtic Tumuli of Dorset," to shew the predominance of the practice of cremation over that of inhumation; and it has occurred to me, that in calculating the relative

details, it would be most effectually carried out by dividing the County into three districts, North, Central, and South, for the purpose of comparison.

The South District will comprise all that part which lies between the coast and the river Frome; the Central, that part which extends between the Frome and the Stour; the North, that which lies between the Stour and that grand Keltic Earthwork, Bockley Dyke, which is the boundary between the Counties of Dorset and Wilts.

This arbitrary division will be seen to be of use in determining the results which this enquiry embraces. The Tumuli described in Mr. Warne's Work amount in the whole to 190, but some of them have been rejected—viz. (1) All such as were found to be devoid of distinct evidence, although several of these might be thought to present traces of combustion; (2) Such as wherein the nature of the interment is not distinctly specified; the object in view being the collection of all the data available from researches in the Tumuli of the Bronze Age, free from doubt, and stated with sufficient clearness for calculating the particulars.

This sifting process reduced the number of Tumuli from 190 to 160, which thus become the residuum strictly referrible to the Bronze Age.

I have purposely omitted any notice of the "Sepulchralia" of Launceston (N), and the "Necropolis" of Rimsbury (S), as Mr. Warne does not include them with the Tumuli. They were simply Keltic Cemeteries; the former being a large collection of cists containing calcined bones; the latter combining a very large number of urns, skeletons, and cists. The relative numbers of these are not distinctly specified; had it been otherwise the proportion which cremation bears to inhumation in Table ii. would have been largely augmented.

I have summarized the results of this analysis in two tables which do not require further explanation. (See Page 57).

It will be observed that the Tumuli which contain interments by cremation and inhumation alone respectively exceed the number of those whose contents are of a mixed kind; and that the Tumuli which contain cinerary urns are more numerous than others. The whole of this series amounts to 84, which is equal to 52.5 per cent., or, rather more than half the whole number of Tumuli.* The general inference is, that the practice of burning the body and depositing the calcined bones, whether in earthenware vases, or,

^{*} This percentage had been much increased if it were possible to include the urns which have been found at Rimsbury. Messrs. Warne and Hall exhumed nearly one hundred in a state of disintegration, and many more had been turned up in ploughing the ground, which were wantonly destroyed by the labourers.—Celtic Tumuli, pp. 58-63.

TABLE 1.

A CLASSIFICATION OF ONE HUNDRED AND SIXTY OF THE TUMULI DESCRIBED IN "THE CELTIC TUMULI OF DORSET" BY CHARLES WARNE, ESQ., F.S.A., TO SHEW THE RELATIVE PROPORTION OF CREMATION TO INHUMATION.

	HE CELLIC	TUM
Percentage of Crema tion: 54 × 23 × 1 × 14 × 5 × 14= 121.	Of Inhumation: 39 × × 14 × 5 × 14=72. 45 p. c. Tumuli with Urns: 54 × 11 × 14 × 5=	84. 52.5 p. c.
Total of Tumuli.	53 32 75	160
Tumuli with Cists and Skeletons.	ರ ಬ ಸ	14
Tumuli with Urns, Cists, and Skeletons.	1 2 2 2	ō
Tumuli with Urns and Skeletons.	- 10 8	14
Tumuli with Urns and Cists.	1337	11
Tumuli with Skeletons.	111 23	39
Tumuli with Cists and Deposits.	11.01.	23
Tumuli with Urns.	16 9 29	54
DISTRICT.	North Central South	Total

TABLE II.

A VIEW OF THE TOTAL NUMBER OF THE INTERMENTS IN THESE ONE HUNDRED AND SIXTY TUMULI, TO SHEW THE GENERAL DEDUCTION. RELATIVE PROPORTION OF CREMATION TO INHUMATION IN THE THREE DISTRICTS.

General Result.	Cremation 63·6. Inhumation 36·4.	100
Per- centage.	26·1 35·5 40·8	36.4
Total of Inhumation.	28 43 111	182
Per- centage.	73.8 64.4 59.1	9.89
Total of Cremation.	79 78 161	318
In Cists.	45 22 15	82
In Urns.	34 56 146	236
Number of Interments.	107 121 272	200
Number of Tumuli.	53 75	160
DISTRICT.	North Central South	Total

more simply, in cists or graves dug in the soil, or, by heaping the remains of the funeral pile on the surface of the soil and covering them with earth deposits, was more in vogue in the æra when these Tumuli were raised, than the alternative practice of burying the body without subjecting it to the action of fire; still it is shewn that this older custom still prevailed along with the other in the Bronze Age. There are evidences of its existence in 72 of these Tumuli, 45 per cent.; but the predominance of cremation is attested by the contents of 121 of these Tumuli, 75 6 per cent. Here is a difference of 30 per cent. between the two modes of disposal of the dead in favour of the practice of cremation.

As regards inhumation, the number of the Tumuli in which skeletons alone were found, either placed in a contracted or extended position, without any other kind of interment, amounts to a total of 39, or more than 24 per cent., of which 23, or about 14 per cent., are found in the South, 11, or about 6 per cent., in the North, and 5, or about 3 per cent., in the Central Districts.

The question may be raised, I think, as to whether the contracted form of burial may not have been continued in the later period as a venerable and honourable form of interment. It is noteworthy that the bronze dagger-blade and the ornamented drinking cup, which may, perhaps, indicate the superior rank of their possessors during life, have been almost exclusively found with skeletons buried in this manner. This was Sir R. C. Hoare's experience of the Wiltshire Tumuli; in fourteen instances of the discovery of bronze dagger-blades two only were found with interments by cremation. Bateman met with only three instances in his explorations in Derbyshire with calcined bones, and, as a rule, with skeletons placed in a contracted position. Greenwell, in Yorkshire, testifies to the same fact.*

TABLE II.

In this table we have a computation of the whole number of

^{*} Hoare's Ancient Wilts. Bateman's "Ten Years' Diggings," p. 163. Canon Greenwell's "British Barrows."

interments found in these 160 Tumuli, classified under the heads of Cremation and Inhumation, shewing their relative proportion for each District, with the general result. The total number of interments is found to be 500, of which 318 are accompanied by evidence of cremation, whilst in 182 there is the evidence of inhumation. The relative proportion here is not so high in favour of cremation as that shewn in Table I. by the simpler method of classification. Nevertheless, cremation is largely in excess, as, inhumation, 36·4 per cent., cremation, 63·6 per cent., shew a difference of about 27 per cent. for the latter.

The Cinerary Urns amount to 236, or about 47 per cent. of all the interments. Many of the urns were found in a crushed and fragmentary condition, and many others, forty at least, were found placed in the inverted position. Two of them are of very large capacity, one of which measured 18 inches in height* and 15 inches diameter at the bulge, and contained thirteen gallons of incinerated bones and ashes. The other measured 22 inches in height and $13\frac{1}{2}$ inches in diameter of the mouth and 53 inches in the circumference.

† The Cinerary Urns found in Dorset are of various form and size, and, on the whole, are devoid of much ornamentation. The Chevron pattern is seen on some of them, but not often; twisted ligament marks in circular lines, and small round depressions in rows; and wavy zigzag indented circular lines are not uncommon. Some of them have two or more knobs or bosses round the upper part or neck, which are sometimes perforated, doubtless to serve as handles, and for suspension and convenience of transport. In all, the material, consisting of sand, clay, and particles of grit, is of a

^{* 1.} Roke Down (Celtic Tumuli, Tum. 2, p. 2). 2. Whitechurch Down (ib. Tum. 41, p. 25). (Central District). By Messrs. Durden and Shipp.

[†] The largest urn yet discovered in Wiltshire is now in the Blackmore Museum, Salisbury, and was found in 1867 at Bishopstone, inverted. It measures over 24 inches in height, and is barrel-shaped. The largest recorded by Sir R. C. Hoare was found by him near Stonehenge, and measures 22 inches in height; is also barrel-shaped.

thick, coarse, and friable texture; of a brown or reddish colour; and it is evident that they were not wheel-made or kiln-baked.

All these varieties of size, shape, and ornament are beautifully illustrated in the plates to Mr. Warne's Work. The typical forms of these sepulchral vessels have a general resemblance in all districts, but peculiarities of style may be recognised in different counties. In our heath districts the specimens which have been found denote a very primitive and rude kind of manufacture, the materials so loosely incorporated that it is very difficult to procure a vessel entire, and fragments only reward the explorator; but there may be sufficient to shew the poverty or absence of ornamen-The urns of this kind which have come under my observation were about a foot in height and 10 inches in diameter of the mouth.* This is a type of urn very seldom found in the upland and Down districts, and may be taken as evidence of a very early and primitive race. It may be so, but I am more inclined to the opinion that it denotes the existence of tribes of low culture which have adhered to their old rude fashion and style of manufacture, whilst their neighbours may have farther advanced in artistic taste and skill.

The number of interments in each Tumulus was subject to much variety. Whilst some contained only one, others contained from 20 to 30 each, and might take rank as family or tribal burying places. Our division of the county into three districts is seen to bring out the fact that the custom of burying the body unburnt prevailed much in the South; less so in the Central; and still less in the North. There is a decreasing ratio from South to North. In the North cremation marks about 74 per cent. (Table I.); inhumation about 26 per cent.; whilst in the South the relative proportion is 59 per cent. for the former and about 41 per cent. for the latter (Table 2). This excess in the number of simple interments

^{*} This type is represented by Tum. 18, p. 15, Celtic Tumuli. It was found in a Tumulus on Boveridge Heath, Verwood. It measured 10 inches in height, 11 inches in diameter of mouth, 38 inches greatest circumference; it was inverted.

in the South is partly due to the fact that, in Purbeck alone, many more skeletons were found in the Tumuli there than anywhere else, which may admit of the following explanation:-Many of these skeletons were found lying in the extended position in Kist-vaens, or rude stone enclosures, which is exceptional in both respects; for in the majority of instances the body when unburnt was deposited in the flexed or contracted posture within a simple cist or grave. When exceptions to this rule occur, they seem to indicate a later mode of sepulture; which is also confirmed when the skeletons are found more superficially deposited than the other interments in the same Tumulus. But in Purbeck the skeletons were often found laid at full length in Kist-vaens throughout the same Tumulus. I think, therefore, that this exceptional mode of sepulture, so frequent there, may identify those Tumuli in which it occurs with a much later period of the Bronze Æra than the Tumuli in the other districts; and it may be taken to imply the dawn of new customs and manners arising from an intercourse with a more civilized people. That people could hardly have been other than the early Roman Colonists who settled themselves in Purbeck and have left there abundant evidence of industrial occupation in certain localities.

The measurement of skulls had not begun to receive a few years ago its due weight as an ethnological exponent, but has since received a great deal of the attention of scientific observers with very remarkable results. Few only of the skulls from the Tumuli of Purbeck have been critically examined, but such as have been submitted to this process confirm the Anthropological datum that the Keltæ were a round-headed (brachycephalous), negro-featured (prognathous) race with an osseous development of limb indicative of great stature and physical strength.*

^{*} Vide Crania Britannica, by Drs. Thurnam and Davis.

TABLE III.

Shews the Various Kinds of Relics Found in Tumuli of the Three Districts:—

KIND OF OBJECT DISCOVERED.		Number of Tumuli.			
		N.	C.	S.	Total.
Bronze		9	3	6	18
Flint		9 5	1	4	10
Stone		1	2	2	5
Bone		3	4	3	10
Amber			1	1	9
Glass		5	1	1	7 5 4 2 3 1
Jet		5	_		5
Kimmeridge Sha	le	_	_	4	4
Ivory		1	1		2
Gold		1	-	2	3
Shell		_	_	1	
Horn		3	1	8	12
Animal Bones		4	1	4	9
Food Vessels		3 4 3 5	2	10	15
Drinking Cups		5	2	1	8
Incense Cups		2	1	1	4
Iron		2	-	_	2
Total		56	20	48	124

It will be seen in this Table that of the 160 Tumuli described in Tables I. and II. 124 only were found to contain any evidence of industrial art or relic of any kind besides the vessels of fictile ware which contained the incinerated bodies or accompanied their interment, as well as that of unburned osseous remains. It also appears that the three districts produced the objects specified in varying proportion to the number of Tumuli in each district; and that the extreme North is by far the most productive of those relics. There is a slight discrepancy between the number of Tumuli in Table III. and Tables I. and II., being in the latter 53 and in the former 56; which may be explained by an error in tabulating the same Tumuli more than once when it contained more than one kind of relic.

OBSERVATIONS.

1. Bronze.—The principal remains of this characteristic metal

consist of the two kinds of dagger-blades, differing only in size, the smaller being now generally known as knife-daggers, but formerly as spear-heads. These are often not more than three or four inches in length, and one or one and a-half in breadth, whilst the full sized blades are from six to twelve inches in length, and three or four in breadth; pointed at one end and with holes at the other for rivets to fasten them to the handle. They are generally ornamented with rows of straight lines or ribs converging from the base to near the point. The knife-daggers are often not so much ornamented. They sometimes shew evidence of gilding; thus Sir or not at all. R. C. Hoare found with a skeleton in the contracted posture a fine gilt dagger with a wooden scabbard (Woodyates No. 23, N.); and in a Tumulus near Maiden Castle, with bones and ashes, two smaller blades were found, the larger of which was "curiously wrought, chased, and had been gilt." (No. 73 S. Pl., fig. E., C.T.) Warne records the finding of a knife-dagger, the haft gone, encased in a sheath of leather. (Dewlish, No. 38 Pl., fig. B., C.) The whole number found in the three districts is 16, of which only three or four are of the larger size. The North district produced the greater number, thus assimilating these interments to those about Stonehenge, and it is stated by Mr. E. T. Stevens that "no other Tumuli in England have been so productive of bronze daggerblades as those of Wiltshire. They occur rather more frequently with unburned bodies than with burned." (Jottings, p. 188). These in Dorset were found with urns in three or four instances: oftener in cists with burned bones and ashes or with skeletons in the contracted form.* A Tumulus on Kingston Down (C., No. 21) yielded one of the most beautiful dagger-blades that this County or any other has produced (Pl. fig. A., C.T.) It was found in a perfect condition, the blade riveted to its ivory handle by five rivets, an unusual number. The blade, beautifully patinated with

^{*} Bateman records the finding of only three specimens with calcined bones, and, as a rule, with skeletons lying in a contracted form.—(*Ten Years' Diggings*, p. 163). Greenwell also to the same effect in Yorkshire.—(*British Barrows*).

"The sacred rust of twice ten hundred years," was enriched with two sets of triple lines or ribs converging from each side to meet towards the point. Its length was $11\frac{3}{4}$ inches. It lay at the bottom of a deep cist in a bed of bones and ashes, below the level of the ground, accompanied by two other blades of the smaller kind.* Above them was an urn inverted. This barrow was of no great size, but remarkable for the fact of being protected at top by several very large blocks of sandstone.

But how may the fact be explained that these bronze daggerblades have been obtained with less frequency in this county than in Wiltshire? May it not be found in the received opinion that Wiltshire was peopled by an early colony of the Belgæ, to whom indeed the erection of Stonehenge is usually attributed; a people more advanced in culture and commercial enterprise than the Keltæ whom they had dispossessed, conquered, and absorbed? Belgæ were the merchants who traded between this country and But still the question arises, in what country were these bronze blades wrought? We do not believe they were manufactured in Gaul, but were carried through Gaul, in the routes of commercial intercourse, from the Phœnician and later Greek colonies of Gaul and Spain to the shores of the British Channel. There can be no doubt that the art of metallurgy was known in Britain from an early period, for we have had numerous discoveries of the celt-moulds in which the bronze celts of the Britons were cast; † but I am not aware of one recorded instance of the discovery of the mould of a bronze dagger-blade. It may be thought that

^{*} It is important to notice an error in the text (C.T.) that these blades were iron. We have Mr. Shipp's authority for stating they were bronze. His sketch and description is published in the Journal of the Britist Arch. Assoc., Vol. 2, p. 98. It was fortunate that this gentleman thus recorded the discovery, as this beautiful dagger was, not long after, destroyed in an accidental fire of the owner's premises.

[†] Mr. Warne was shewn by Dr. Croker, of Bovey Tracy, Devon, two moulds for casting bronze blades of a spear or sword, which were found in a bed of a stream in his district, in 1851. The one was 2ft. in length; the other 1ft. 9in., and each mould weighed 72lbs.

the greater portability of the latter weapon, as an article of merchandise, had some weight in its non-production by native art. The traffic between Iberia and The Cassiterides is mentioned by Strabo in a well known passage (Lib. iii., c. i and ii.) which refers to a very remote intercourse of foreigners with Britain. It consisted, we are told, in the barter of skins, tin, and lead, on the part of the islanders, for earthenware, salt, and bronze ware. The introduction of bronze is thus accounted for, we cannot tell how many centuries before the Christian æra. The Χαλχώματα of Strabo, which is usually translated "brass vessels," may surely take a wider range and more distinctive interpretation, so as to include "brass" or bronze ware in general; and in particular bronze weapons, as the dagger-blades of our Tumuli.

In addition to these relics, our Barrows produced a few other minor articles, as (Tum. xiv., N.) a circular fibula of brass, with a female skeleton; (No. 42, N.) a bead of brass and large bronze pin; (No. 21, N.) a brass arrow head and beads in a cist of burned bones. This arrow head (Pl. xiii) would now perhaps be described as a very small knife-dagger. In Purbeck Mr. Austin found in Tum. 87 a bronze fibula and an inverted urn; and in No. 88 S. a bronze or copper ring.

2. FLINT.—It may probably excite some surprise that so few of these Tumuli have produced weapons or implements of flint, a material that abounds in almost every part of this county, and always afforded a ready resource in the absence of metals to supply their place, from the most remote ages of primitive barbarism; and even after the age of bronze was fairly established its use was not discontinued. It is well known to collectors of these curious and interesting relics that the ground in some places is often largely strewed with implements and weapons of flint, rudely fashioned and imperfect, still manifesting design and skill, how rarely soever it may be to find a perfect specimen. The forms of these primitive objects are as various as the uses for which they were designed. There are knives, scrapers, chisels, hammers, axes, and arrow heads. The latter are, perhaps, more numerous than any of the other

forms. It is therefore rather remarkable that not many flint implements or weapons were found in our Tumuli. But we have a record of the discovery of a few arrow heads, and some of them of a very unusual and beautiful description. In a Tumulus on Whitechurch Down (C., No. 41), there were nine rudely chipped arrow heads amongst the bones and ashes in a very large sized urn. A few were found in more than one of the Purbeck Barrows (S.) On Woodyates Down Sir R. C. Hoare (N., No. 23) found four with a bronze dagger and skeleton in the contracted posture. On Gussage Down (N., No. 1) Mr. Warne found two flint flakes that may have served as knives. In an oblong Tumulus on Pistle Down Heath (N., No. 19) four very rare and highly finished arrow or iavelin-heads were found. They were probably unique types, being of the leaf-shaped form. Dr. Thurnam has remarked on the rarity of this type, and states that there is not one of this kind in Sir R. C. Hoare's Museum; but since this discovery, made in 1828, Dr. Thurnam found four specimens in Wiltshire (Winterborn Stoke, Proceed. Soc. of Antiquaries, Vol. 2, 1864); and two more later were found by Canon Greenwell in Yorkshire (Cowlam, Brit. barrows, 1877). There was no urn or other sepulchral deposit found with those on Pistle Down. The form of arrow heads has not been generally specified, and they were probably of the ordinary barbed shape. Flint celts, axes or chisels, were extremely rare. We have not one recorded instance here. The leaf-shaped arrow heads are found in Ireland.*

3. The stone implements were few; the most noteworthy specimen was a remarkably fine axe-head of green stone, perforated for the handle, which was found by Mr. Warne in a Tumulus at Winterborne Stepleton (S., No. 46, Vignette, p. 63, C.T.) with a deposit of burned bones and ashes. A barrow on Roke Down (No. 2, C.) produced two stone amulets amongst bones and ashes in an urn. Another barrow on the Ridgeway (No. 77, S.) contained in an urn, with incinerated bones of the fox or badger,

^{* (}Vide Wilde's Catalogue of the Irish Academy, p. 22, fig. 22, 23, 25, and Mr. Franks in *Horæ Ferales* p. 135, fig. 39, 41, 42).

and a boar's tusk perforated, a spear-head of stone, curiously serrated. A broken stone celt was found by Sir R. C. Hoare at Woodyates (Tum. 23, N.); in Purbeck (S.) a whetstone, perforated at one end. We must not omit to mention the discovery in a Tumulus on the Ridgeway at Came (S., No. 12) of two large blocks of stone which lay on the top, each having on the underside three concentric circles, deeply incised. Such stones are supposed to have held some position in the religious creed of the Keltic race, This sculpturing has been observed on rocks in England, Scotland. and in India, and has received much attention from travellers and archæologists.*

- 4. Articles of bone were more frequently found, but were not of much note, excepting a spear-head (Monkton, near Dorchester, No. 62, S.); an arrow head, and several tweezers, beads, and pins (N.)
- 5. We now come to that beautiful fossil production, amber, which seems to have been in great request for the purpose of personal ornament. Beads of this material were found by Sir R. C. Hoare in several Tumuli at Woodyates (N.) In a cist within one of the low mounds in a disc barrow he found a hundred of these beads, also pieces of amber and other relics with burned bones. In a barrow at Bloxworth (Tum. 14, C.) an urn contained eight amber beads amongst the burned bones and ashes; and the Culliford Tree Tumulus (S., No. 22), explored by Captain Dawson Damer, contained skeletons, placed in the extended form, and at the neck of one of them were the remains of an amber necklace, with traces of thin gold plate.
- 6. Glass Beads.—Such were found along with those of amber in Tumuli No. 19 and 22 of the N. district; following the rule of greater frequency of ornamental objects in the N. than in the other districts. In a large Tumulus of the Central district at Shapwick

^{* (}Vide "Archaic Sculpturings of Cups, Circles, &c., upon stones and rocks in Scotland, England, and other Countries." By Sir J. Y. Simpson, Bart., F.S.A., Edinb., 1871); also "Sculptured concentric Circles on rocks in Northumberland" (Greenwell); and "Archaic Sculpturings in India," by H. Rivett Carnac. ("Notes and Queries," 5 S., vii., 41, 1877).

(No. 63) was discovered after eight days' laborious digging, amidst a deposit of charcoal and ashes, a ruby coloured barrel-shaped glass bead which had undergone the action of fire, but there was no other sepulchral interment to reward the patience and labour of the explorers.* In the S. district (Purbeck, Tum. 86) a green glass bead with a skeleton was found by Mr. Austen.

7. 8. JET AND KIMERIDGE, OR BITUMINOUS SHALE.—The former differs from the latter, being specifically a lignite, whilst the latter is of a shaly nature, but both are of bituminous character, derived no doubt from the vegetable properties common to both, and now fossilized. The former is chiefly obtained from the Yorkshire strata; the latter is found on the Dorset coast, in a characteristic formation from which its appellation is borrowed. Both appear to have afforded from very distant time the material for personal ornament and other uses. Jet is of some rarity in our Tumuli; Sir R. C. Hoare records the discovery of a female skeleton in the extended position with a few beads of blue glass and jet and a beautiful ornament set in gold, enamelled, and with a chequered pattern (Tum. No. 47, N.) This was regarded by Sir R. Hoare as the grave of a Belgic or Romanized Briton. In Tumuli No. 23, N., he found with skeletons two ornaments of jet perforated for suspension, and another larger of the same material, "resembling a pulley," lying near the thigh bone. (Pl. 3, Woodyates). Beads of jet and amber were found together as in Tum. 42, N. Articles of bituminous shale are even more infrequently found in our tumuli than those of jet, which is the more noteworthy, as the material is the better known, especially in Purbeck, where, as is now understood, the Roman colonists established their handicraft at an early period of the subjugation of the Durotriges, erected their work-

^{*} The exploration of this Barrow has been made the subject of an ingenious memoir by the late Rev. C. Woolls, curate of Sturminster Marshall, entitled "The Barrow Diggers, a Dialogue in imitation of The Grave Diggers in Hamlet, with numerous explanatory notes," pp. 112. London, Whittaker and Co., 1839, Shipp, Blandford. The Notes and Plates are good.

shops, and utilised the shale in the manufacture of rings, armlets, amulets, beads, and various articles of domestic use and furniture, with the knowledge they possessed of the use of the lathe, which we have reason to believe was unknown to the native inhabitants. This manufacture flourished very actively, if we may judge from the heaps of débris which remain to the present day, and formerly gave rise to theories of their origin and use, very wide of the truth, and impressed the minds of some antiquaries with ideas of mystery and wonder.* These theories have been exploded by sounder views and clearer archæological knowledge. The débris to which I have alluded consists of circular portions or discs of the shale, generally perforated and marked with circular lines, which are simply the refuse parts of the block on which the lathe had operated in turning rings, beads, amulets, &c.; but they formerly obtained the name of "Coal Money," which mystified them in a remarkable manner. There may have been a superstitious use made of these objects, but certainly this was not their primary use and design. It is, however, somewhat remarkable that it has been rare to find one of these specimens of "Coal Money" in the Purbeck Tumuli, which seems to afford a proof of the pre-Roman age of these interments. Mr. Austin certainly does record the finding of a ring or armlet, a fragment of coal money, and some pieces of the unworked material in two barrows (No. 86, 88) of the early Romano-British period, in Purbeck, and Hutchins, in the notice of a barrow opened at Bradford Peverell (vol. ii., ed. i., p. 140, S.) records the discovery of urns and "leather money as found at Kimmeridge." This is a curious fact, and would show that the contents of this barrow were deposited probably in an early part of the second century, if not in the first, after Vespasian's conquest. But we may also remember another very remarkable discovery at Stoborough, near Wareham, recorded by

^{* &}quot;A minute account of the Kimmeridge Coal Money, a most mysterious and nondescript article"; by William Augustus Miles, Esq. London, Nichols and Son, 1826. See also an article "On the Ancient Use of Kimmeridge Coal" in Mr. Warne's Ancient Dorset; by W. S.

Hutchins (vol. i., edit. i., p. 25, S.) of a body wrapped in skins, and laid in a roughly hewn oaken log, with which was a small vessel supposed to be made of oak, but which, I am disposed to think, was probably a drinking cup or food vessel turned in Kimmeridge shale. A very beautiful cup of this kind of bituminous material was found in a tumulus at Honiton.*

9. Ivory has been very rarely met with in our tumuli; one of the Woodyates barrows produced an armlet of this material, and this, and the handle of that beautiful bronze dagger, previously mentioned, from a barrow on Kingston Down, are the two only instances of its discovery.

It will not be out of place here to advert briefly to the source whence these several kinds of ornamental articles, amber, glass, and ivory, have been derived. They are mentioned by Strabo as articles of commerce between Britain and Gallia Keltica. This must have been at a very remote period, probably going on long before the Christian æra. His words are—" έλεφαντινα, ψάλια και περιαυχένια, και λιγγόυρια, καὶ υάλα σκέυη, καὶ άλλος ρώπος τοιουτος," (Lib. iv., c. iv.) ivory bracelets (or armlets) and collars (torques?) amber and glass vessels, and other small ware." All these articles may have been brought from the countries on the shores of the Mediterranean, including amber, which, although generally attributed to the shores of the Baltic, might also have reached this country from Liguria, now Genoese territory. There can be no doubt that amber was found there in abundance, as we infer from what Strabo says in another place; writing of Liguria and its products he uses the word λιγγόυριου as synonymous with ήλεκτρου, which we know means amber (Lib. iv., c., 6 § 2). Amber was a mystery to the Greeks and Romans, who assigned to it a fabulous nature, as though it were a product of the renal secretion, especially of the Lynx, whence they denominated it Lapis Lyncurius. All the articles named were doubtlessly imported by the Phœnician and Greek

^{*} See "A Memoir of the Examination of Three Barrows at Broad Down, Forway, near Honiton"; by the Rev. R. Kirwan, 1869. Brendon and Sons, Exeter, &c. Our Stoborough Tumulus is therein noticed, p. 10.

colonists of Spain and France, and by them exported to Britain, chiefly in all probability by overland carriage. There existed at this time an exchange of commodities; Britain supplying corn, cattle, gold, silver, iron, slaves, and dogs for the chace. (Lib. iv., c., 5). This bit of primæval history relating to Britain is most valuable, as proceeding from an ancient author held in deserved estimation.

10. Gold.—Of this precious metal a very few instances of its use are afforded. I have already adverted to the gilding apparent on two or three dagger-blades; and have noticed the small and thin plate of gold between the beads in the Culliford Tree Barrow (No. 47, S.) In the exploration of the Stoborough King Barrow (S.) there was found a supposed fragment of gold lace within the cup that accompanied the skeleton. In one of Woodyates Tumuli (which is a disc barrow close to the Roman road, No. 28 Plan; Pl. 2, Anc. Wilts) Sir R. C. Hoare found a beautiful small ornament of gold, and with it two beads of blue glass, the one having a wire hoop of gold and the other an elegant gold chain attached, which were probably the earrings of the British female whose body was there interred. Gold and silver were of the exports of British produce. The gold was principally obtained from the Irish mines. "In Ireland," as Sir W. Wilde informs us, "it is supposed that native gold was the metal with which the primitive inhabitants were first acquainted, and a greater number and variety of objects of gold have there been found than in any country in North-West Europe. . . Even the name of the artificer by whom gold was first smelted in the woods of Wicklow, three centuries before the Christian æra is mentioned in Irish Annals."*

11. 12. Shell; Horn.—The solitary specimen of the former is a Cowrie that had probably been picked up on the sands of Weymouth Bay, and preserved as a curious relic. With a few other beads of common material it had formed the necklace of a

^{* (}Journal of the British Archwol. Asson., Vol. xxiv. Paper by Albert Way, Esq., F.S.A.)

British lady, and was found along with her burned bones and ashes in an urn. This was a very fine Tumulus, and contained several urns and skeletons, situated about three miles West of Dorchester within a few hundred yards of the Icknield Way (No. 70 C.T., S.)

The horn consisted of portions of antlers of the red deer, which were found in several of the barrows, N. and S. In one (Panfield, S.) there were marks of a cutting tool on it; but it is not obvious for what reason they were deposited with the interments, unless as trophies of the hunter's skill and success in the chase. This would seem to be the most likely explanation, though it is well known that the horn has been used for hafting stone or flint implements, and the tines used as picks in excavating the ground for flint, chalk, &c.

13. Animal Bones.—Those which are noted are as follows:—Horse, dog (once only recorded), ox, sheep, and boar (especially the tusks), were the most numerous; fox or badger, and some birds' bones.

14. 15. 16. FICTILE WARE, CONSISTING OF FOOD VESSELS, Drinking Cups, and Incense Cups.—The first is a species of urn of much smaller size than those which contain the incinerated remains of the human body, and are often made of better material of more artistic form, and decorated with more skill than the common urns of the sepulchral class. The plates in Mr. Warne's Work give examples of the former, shewing much diversity of size, form, and ornamentation. They are always found empty, and sometimes are deposited with the body unburned. It appears that a larger number of this class were discovered in the Tumuli of the South than in either of the other districts. This kind, nevertheless, is not very often found either in Dorset or in Wilts; they have been found more frequently in Yorkshire; in Ireland they are numerous and most highly ornamented. In the Badbury Barrow (C., No. 85) Mr. Austen found in a cist a most beautiful specimen, of an unusual shape, and ornamented with three rows of the chevron pattern, and other indentations; it was two and a-half inches in height and three in diameter of the mouth, and had handles (Pl. vii., fig. 2, C.T.) The use of these small vessels is conjectural, though we may not err much in the appellation given them, from the inference that they may have served a domestic purpose in the abodes of the living, and also contained the viaticum for the dead in their journey to another world.

The second class of vessel is that which has obtained the designation of "Drinking Cup," a vessel of a specific type, material, and artistic design, varying in size in different localities, yet very uniform in character in England and Scotland, in the south and in the north, but not found in Ireland, though they may be in Denmark. They are said to be found more frequently in the Wiltshire Barrows than in any other part of England (Stevens). The shape of these vessels or cups is globose below with straight sides enlarging upwards to the mouth, the height seldom above eight inches. This is the typical form; their material is of a finer, closer texture than British pottery in general, often of a reddish colour, and well burned. They seem to have been wheel-made and kiln-baked. They have been but rarely found in Dorset; in the whole series there are not more than three typical specimens of this The finest was exhumed by Mr. Warne from the Dewlish Barrow (No. 33, C.), not figured by him in his work, but so described that it cannot be mistaken. I have, indeed, a sketch of it, shewing its great resemblance to two others which were found at East Kennet, Wilts (Archaeologia, vol. 43, p. 392, fig. 83, and Jottings, p. 183). In these specimens the design consists of square panels, inclosing a cross in saltire, with the spaces filled in with linear marking and indentations. The designs vary a good deal, some being very complex and beautiful, denoting much artistic skill of manipulation. Mr. Warne's cup was exhumed from a cist in the centre of the barrow at a considerable depth below the level of the floor. It was a barrow of large size, and at different levels throughout were found urns and skeletons, but the cup had not a particle of bone or ashes with it.

In a Tumulus at Winterborne Kingston (C., No. 9) the frag-

ments of a crushed cup were found, highly decorated with the chevron pattern. Below it were a skeleton and cinerary urns also. On Blandford Racedown (N.) Mr. Austen procured a beautiful cup of the typical form, but smaller than usual, with a skeleton in the contracted position. This cup is figured (in Pl. vii., fig. 1, C.T.), and the characteristic chevron pattern is shewn in a clear and elegant design. This seems to have been a very favourite style of Keltic ornament. From a barrow at Woodyates (N., No. 28) Sir R. C. Hoare says he procured an urn, "which I have denominated a drinking cup, coloured red, slightly glazed, and of infinitely better workmanship than the larger sepulchral urn. . . . It is singular that this cup should have been deposited without its usual attendant skeleton."

It becomes a question of curious enquiry how it is that this class of vessels, bearing a common resemblance, with little variety except as to pattern, is found disseminated over such an extensive area. In reflecting on this subject I am led to venture the opinion that they were imported from some place or places of manufacture and distributed by the ordinary routes of commercial intercourse, and the question would then arise where are this centre or centres of industrial art to be found, and at what date of the Keltic æra did they flourish? Now, judging from the quality of the material, the workmanship, and the artistic taste displayed in these vessels, I should be inclined to attribute their date to a late Keltic period, with the probability of their having been imported from those parts of Gaul and Germany whose kilns supplied in the subsequent Roman age that fine kind of decorated ware which is generally known by the name of Samian. This still leaves unexplained the curious fact of the absence of this class of vessel in Ireland. I can only venture the suggestion that Ireland was not at this time visited in the ordinary lines of commerce.

The remaining class of fictile ware is that which Sir R. C. Hoare denominated the "Incense Cup" on purely conjectural grounds, for to this day we remain in ignorance of its proper use and function. Its small size, and sides often perforated so as to

admit the air and for suspension, suggest that it was in some way connected with ignition. If used in funeral rites, as the name implies, we do not know what kind of substance was employed for the purpose of yielding and diffusing its odoriferous fumes, and the infrequency of its occurrence with the cinerary urn renders this explanation more doubtful still. These little vessels are seldom above three inches in height, twice as much, perhaps, in diameter, of a round and compressed form, with a small central aperture. Mr. Warne gives the figure of a very perfect vessel of this class, as the vignette on the title page of C.T. There is no other history attached to it, beyond that of having been found by labourers in removing a large barrow on Burleston Farm, near the old Dewlish Turnpike Gate. They have been but rarely found in Dorset. elegant incense cup was found with burned bones at Woodvates (Tum. 10, Pl. 2, fig. 1). In the Culliford Tree Barrow (S., No. 22) Captain Damer found a small urn, two inches in height and one and a-half broadest diameter, plain and fragile, within a large urn, containing burned bones and ashes. Sir R. C. Hoare's friend and colleague, Mr. Cunnington, found within a very large urn, containing bones and ashes, a richly ornamented incense cup (Woodyates, N. Tum., 26). Those four vessels of this class are the only recorded specimens found in Dorset out of 500 interments of all kinds, thus corroborating the statement of their rarity in this county, but as being oftener found in Wilts (E. T. Stevens, Jottings, p. 179). It is said not to be found in Scandinavia, Germany, and France. It is found in Ireland, not common in Yorkshire, six only having been found there by Canon Greenwell with 71 cremated interments (British Barrows). I will conclude these observations with a suggestion. May they not have served the purpose of holding and conveying live embers to light the funeral pile, as well as for more common and secular use in the domestic economy?

17. Iron.—In the N. district (No 47, Woodyates) the Tumulus which produced the gold ornaments, already noticed, had also several nondescript articles of iron, intermingled with the chalk

soil. A few iron nails, probably Roman, were found in another barrow. No. 45 produced a lance head and two knives of iron, with a skeleton, which are decidedly Saxon; and No. 64 contained with a skeleton an iron spear-head, and another weapon, much corroded by rust, both unquestionably Saxon; moreover, ought not to have been included in Mr. Warne's series, as the Tumulus is situated on the north side of the Bockly Dyke, which is in Wiltshire. In Tum. No. 14, N., were found by Sir R. C. Hoare, with a female skeleton in the extended position, beads and bronze articles, an iron ring, one and a-quarter inch in diameter, the broken pieces of another iron ring, and other bits of iron, much corroded. In the Afflington Barrow (No. 88, S.) Mr. Austen found a piece of iron, with a piece of Kimmeridge shale, and fragments of pottery, apparently Roman.

Cæsar speaks of the iron mines of Gaul (De. Bell. Gal. vii., 21), and it is probable that this metal was in use in Britain prior to Cæsar's invasion, but confined to a few localities. Of Cantium he says "in maritimis ferrum" (De. Bell. Gal. v., 12). It is now well known that the iron mines of the Forest of Dean, in Gloucestershire, and those of the Forest of Andred, in Sussex, were extensively worked by the Romans. But there was a time when the Keltæ of these districts wandered through their forest glades in happy ignorance of the rich mineral treasure beneath the soil; it was reserved for strangers of another speech and nation, further advanced in the knowledge of the arts of life, to bring into the light of day this hidden gift of Nature. Slowly, no doubt, the change came, but we may be sure that the glare of the first iron furnace which lit up those barbarous wilds sounded the knell of that old bronze age which had followed the earliest migrations from east to west through Greece, and Italy, and Spain to Gaul and Thus was introduced a new factor in man's progress towards civilization, even such as neither the poor Kelt or his master had ever dreamed of. From that day to this it has been ever growing in power, whilst the Genius of Science has been ever finding out new methods of adapting it to the wants and wills of

man. This iron age, potent for evil as for good, is of this our day; the bronze of a past age lies treasured in our cabinets and museums, where its relics appeal to us for the veneration that is due to their antiquity and the lessons they teach; whilst we ponder over them as the earliest links of that great chain of art which binds our age to the past, reaching down from Keltic barbarism and Roman supremacy to the latest triumphs of science in our foundries and workshops, our ships, our railroads, our implements of peace, and our engines of destruction.

T. W. W. S.





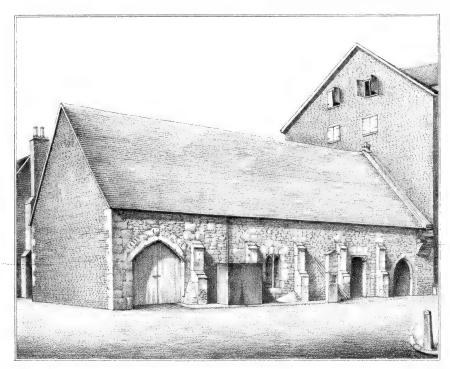
The Town Cellar, or the Church of the Monastery of St. Clement's,

AND OTHER BUILDINGS SUPPOSED TO BE CONNECTED THEREWITH, IN THE TOWN OF POOLE.

By Dr. W. TURNER, J.P.

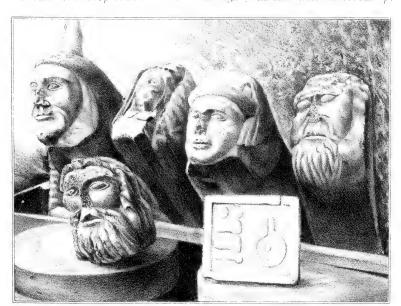
HE Town Cellar is a large building of stone, standing at the south end of the Quay of Poole, or rather of the Great Quay, as that portion of the Quay was formerly known, and bearing the inscription "Town Cellar" over one of its doorways. But little appears to be known of the original

intention of this building. Hutchins says of it: "The Great Cellar, or King's Hall, or Woolhouse: an edifice of some antiquity, supposed to have been built Temp. Edward III. (A.D. 1327-77), or 2nd Henry VI. (A.D. 1424). It is a large stone building, the walls strengthened by low buttresses, with details of a decidedly ecclesiastical character, leading to the conjecture that such was its former use, though subsequently appropriated by the Lords of the Manor as a storehouse for the tallages anciently received in kind, and for other property." He adduces as evidence of its being used by the Lords of the Manor, for the purpose before mentioned, that there was in Salisbury-street on the north side of the Town Cellar, until about 1820, when the present engine-house was built, a building, described, amongst others, in the town records, as belonging to



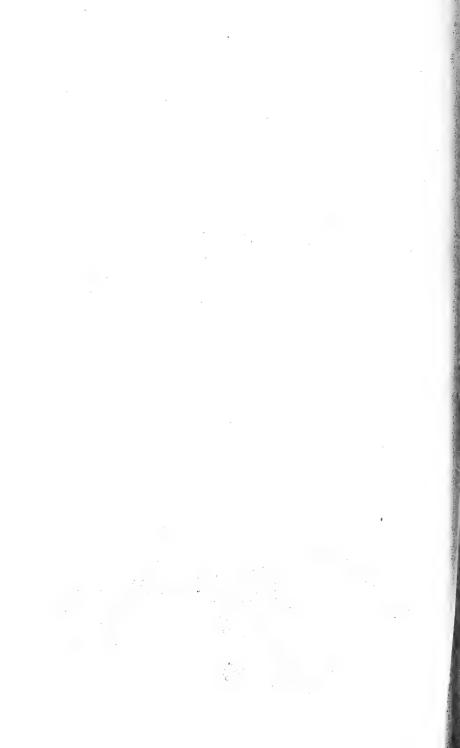
THE TOWN CELLARS, POOLE, DORSET.

a. Great Corbel. b. portion of Cellius out through by Thames Street and bricked up.



ANCIENT CARVED HEADS ON HAMMER-BEAMS IN LARGE ROOM IN THE SHIP INN, ADJOINING THE CELLARS.

Mintern Bros lith



the town, as "a little prison by the Quay, called Salisbury, of which the quitrent is a peppercorn." This little prison, called Salisbury, Hutchins thinks "was so named from the Earls of Salisbury, Lords of the Manor, and was perhaps as ancient as the Longespees themselves, and used by them as a place of confinement in connection with manorial authority." I think his reason insufficient and his surmise unwarranted, and if the proposition I shall put to you in the course of this paper be correct the little prison would scarcely have been built until the Town Cellar was appropriated to other than ecclesiastical purposes. Sydenham disposes of the Town Cellar by saying that it has been used for centuries for the temporary deposit of goods brought to the town, that no sufficient evidence can be adduced of its ecclesiastical intention, and that it is more probable that it was raised by the ancient Lords of the Manor for their accommodation when visiting the town, or as a storehouse for corn and other goods taken by them He also adds that it is clear from the account of Pero Nino's attack on Poole (A.D. 1406) that it was then used as a storehouse, and he, in another part of his history, states that it was then burnt. (To these statements I shall refer presently). Sydenham concludes his account of the Town Cellar by telling us: "It is now (1839) held of the manor. It was leased to the Corporation about the middle of the 16th century, and has since been used as Town Cellars." At the present time (1887) it is rented direct from This suggestion, that the building was raised by the the Manor. Lords of the Manor, or used by them, for their accommodation when visiting the town, is not supported by any evidence, nor, judging from the character of the building, its situation, and the propinquity of Poole to Canford, even by probability. I have given you the accounts of this building, its origin, and purposes, as given by the recognised historians of the Town and County of Poole, and I think you will agree with me that they do not help us much in determining its original intention. Indeed, when I found how little they knew of the matter, I almost gave up the idea of writing a paper on this subject for the Poole meeting of the Dorset Natural History

and Antiquarian Society, as a task beyond my poor ability. I. however, determined first to see what help tradition would afford me, and, on enquiry amongst the older inhabitants of the locality, found a legend that it had either been a nunnery or, as they represented it, "a King's Palace." You may possibly consider tradition but a poor reed to lean on, yet tradition is frequently more to be trusted than records written by persons knowing nothing of the place and taking no especial interest in the particular object. With these legendary data, I consulted the oldest maps I could find, and in one made by Sir Peter Thompson (A.D. 1741) I find this Town Cellar called the King's Hall. In another map (dated A.D. 1784) in the Harbour Master's Office, it is also so described, and on comparing these two, I found a corroboration of what I had already pointed out, from an inspection of the external characteristics of the building, that Thames-street had been carried through the centre of the building, removing a portion of it, a fact altogether ignored by both Hutchins and Sydenham; although, singularly enough, Hutchins may show the building entire, with apparently a covered pathway running under and through it, whilst his plate of the Town Cellars shows only the portion lying between Salisbury-street and Paradise-street on the north and south, and bounded on the west by Thames-street, and on the east by the Ship Inn, and both he and Sydenham entirely ignore that portion of the building now used as cellar and storehouse by the New Inn. Ship Inn, and the finial bases on the extremes of the two separated portions of the Town Cellars, determined in my mind that the legend of the nunnery was correct. I shall refer to the decided ecclesiastical features in this building, the Ship Inn, later on, and will here only mention that it was standing in 1871, but has since been pulled down, and Messrs. Oakley's corn stores now occupy the site. I will now describe to you the Town Cellars, the St. Clement's Wall, called by Hutchins and Sydenham the remains of the Town Wall, and as I consider erroneously so, and one or two neighbouring remains bearing on this subject of the Town Cellar and the Town Wall.

The Town Cellar has on the north in Salisbury-street two windows, but no door, and I wish to call your attention to the fact of there being no door on the side farthest from the Quay, as being partial evidence that this was not the building mentioned in the account of Pero Nino's attack on Poole in 1406. On the Quay, or south side, are two doors and three windows, one of which windows has been converted into a door. In the part on the other side of Thames-street, now used as cellar and storehouse and formerly as stables to the New Inn, there are apertures of five windows looking towards the Quay, three on the same level as those in the other portion of the building and two in the roof, but the lower openings are now blocked up by the building known as the Town House, and at the west end is a large window. either extremity of the roof of the Town Cellar are cope stones with square recesses in their upper surfaces for a finial, possibly a cross. On the house bounding the east side of Kendall's-lane is also a cope stone, apparently of the same date, for, as far as one can judge in their present mutilated condition, they are alike in size and carving. It was the identity of these finial bases which first confirmed my impression that the Town Cellar and the stable of the New Inn were parts of the same building. It was the finding of the other on the house bounding Kendall's-lane which led me to associate that house, erroneously known as Sir William Phippard's house, but which never was his, with the Ship Inn and the Town Cellars; the three buildings forming the two sides of a quadrangle, of which a third side was in the direction of the wall at the back of the St. Clement's Inn, described by both Hutchins and Sydenham as the remains of the Town Wall referred to by Leland in his Itinerary, circiter 1545, as begun by Richard III. between 1483 and 1485. On the side of the Town Cellar facing the Quay, and at the end next the Old Ship Inn, is a heavy corbel, which, from the appearance of the wall, has been introduced subsequently to the erection of the building. This corbel is of large size, as if to take some very great weight, but it has no skewback, an omission compensated for, as I shall presently describe; but

there are five other stones overlapping the corbel, two on the top, one on the top and side, and two at the side, all projecting towards the east, or in a line with the south face of the building. The stones above the corbel have evidently been removed to permit of its insertion. The stones projecting towards the east were evidently keyed into another wall running north and south, at right angles to that face of the Town Cellar, or at all events in a direction across Paradise-street. Within the Town Cellar this south-east angle is filled up and corbelled by a segment of an arch, and above it by masonry, filling up the angle to the roof. The arch starts from the east end, on a level with the top of the exterior large corbel, bridges the angle of the building, and strikes the south wall a little distance above the corbel, as if intended to receive the thrust of an arch, instead of introducing a skewback for This I take to be the site of the gate and part of that purpose. wall mentioned by Leland, as begun tempore Richard III. In the south-west angle of the interior of the building is a similar arrangement of arched corbel, but close to the wall plate of the roof, for what purpose I cannot make a suggestion, unless there was a turned stair there for access to the upper portion of the building, lighted by the two windows mentioned before as being in that portion of the roof. In the interior of the building on the north and west sides is a ledge six inches in width, apparently to support floor This ledge does not appear on the south or Quay side, nor at the Ship Inn or east end. The ledge is three feet below the sill of the windows in Salisbury-street, the north side, and four feet six inches from the present ground level. On the Quay, or south side, the sills of the windows are two feet three inches above the present ground level; consequently, a floor carried on this ledge would strike the centre of the windows looking on the Quay. All the windows are of the Perpendicular style of architecture. two doors are pointed arched doors, and I think are the original doorways. The roof is of oak and is good Early English, I think the original roof, and was formerly stone-tiled with the stone slabs so commonly used for roofing in this neighbourhood and in

the Isle of Purbeck-hence its preservation when other parts of the building were defaced by man and became a ruin, The roof is of oak with transoms, the principals ten feet apart, with five knee pieces between; these knee pieces lean outwards. floor ledge represents the level of the original floor of the building necessarily raised on account of high tides, and appears to have been destroyed on the south and east sides, as were the original windows, or they were in such a ruinous state when the building was restored that they were replaced by others in the Perpendicular style in vogue at the time of restoration, on the Salisbury-street side on the original level of the windows, but on the Quay side on that level more convenient to the purpose to which the building was then adapted—probably stores of war for use by Henry VI. in his war with France. The dimensions of the Town Cellar are as follows: -Total length of Cellar, 122ft. 6in. This is inclusive of the piece of building removed to allow of the continuation of Thames-street to the Quay, the width of the street being 20ft. 9in. Width of Cellar, 31ft. 6in. (this is measured in Thames-street). Thickness of walls, 3ft. 4in. The walls are of rubble, the stones being of sandstone, Purbeck limestone, and some The windows in Salisbury-street and Paradise-street are chalk. two-light, the lights being 14in. in width. The mullions are stone, 6in. in width. The height from spring to head is 1ft.; from sill to springing, 4ft. The dripstone of the buttresses should be noticed. the break being unusual, especially one on the Quay nearest Paradise-street. The window at the west end (in the portion used as store by the New Inn) is of Perpendicular style of architecture, two-light, each light being 4ft. 6in. in width, with splay of 6in.; height of springing, 9ft.; rise of 4ft. The large corbel is composed of four stones, each 6in. in thickness, and rounded on the outer surface. The upper one is 33in. by 24in. Each of the others is six inches less in width. The depth of corbel is 24in. From the two upper stones project broken fragments towards the east. The little prison called Salisbury was a small stone building, 26ft. 7in. in length and 8ft. 4in. in width. It was built up against the eastern

end of the north side of the Town Cellar. The stocks were kept in it, but when they were used they were taken out and stood up against the north wall of the Town Cellar, and there is in the nearest buttress to the Salisbury a square hole, which apparently supported the beam used as seat.

I will now describe the Ship Inn, so far as I am able, for, though I recollect it as an inn, yet I remember but few of its peculiarities. It was a house with very low dark rooms; I think with ceilings panelled with beaded wood, but the upper rooms were so divided by partitions that none of its original characters appeared until Messrs. Oakley caused it to be pulled down, which was done by Mr. Morris; and to Messrs. Oakley and Mr. Morris I am indebted for my information with regard to the Ship, as also for those particular features which stamp this building and the cellars with their ecclesiastical character. A.D. 1692 in a transfer from William Cleeves this building is spoken of as "the Paradice Cellar, situate on the chief key of Poole, bounded on the north and south by two of its streets, viz., Salisbury-street and Paradice-street, and on the west by the Town Cellar." A.D. 1787 there is a transfer of the White Hart Inn, formerly Paradice Cellar. A.D. 1820 a transfer of the Coal Exchange public house, late White Hart, formerly Paradice Cellar. It afterwards became the Ship Inn. In all these transfers Paradice Cellar is referred to as next the Town Cellar, and probably both buildings were converted into stores or cellars at the same time, and most likely were previously devoted to one and the same purpose, which I hold to have been a monastic use. I wish here to draw your attention to the spelling of Paradice in these transfers; it has suggested to me that the origin of the name of Paradise-street, or rather Paradise-row, as it was called when I first knew it, might be "route par Adieux," Farewellstreet, as leading to the Quay. Par Adieux is used in Chaucer. When the Ship Inn came to be pulled down in 1871 there was found to be a large room upstairs extending the whole width of the building, from Salisbury-street to Paradise-row, and which was termed the banquetting-room, why I know not, but for convenience

I adopt the name. Below was an ancient doorway formed of Masonic stone jambs and lintel, the sill of which was about five or six feet above the level of the present road, about the same height as the floor ledge in the Town Cellar. This doorway looked to the east and opened into a short passage leading north into Salisburystreet, opposite, or nearly opposite, Kendall's-lane. There were other buildings between the Ship Inn and the present Library, but of these buildings I can give no particulars, all record of what originally stood there having been lost. The large room or banquetting hall extended from Salisbury-street to Paradise-street, , having a lancet window or windows looking into Paradise-row, and in the middle of the west side of it, that adjoining the end of the Town Cellar, was a large chimney and a stone mantelpiece of handsome design, and ornamented in the Perpendicular style. mantelpiece is still in Messrs. Oakley's possession. The room was 42ft. in length from Salisbury-street to Paradise-row, that is from north to south, and 33ft. 6in. in length from east to west. Ship Inn and the Town Cellar were separate and distinct, there was no party wall, and the Town Cellar was oriented. banquetting hall had an open oaken roof, the principals being supported by hammer beams, each beam terminating in a carved head of monastic character, some wearing the tonsure, others the veil, I have had those that are still in and some of them bearded. existence photographed. From the upper surface of these hammer beams spring the principals, and from below curved ribs, the two forming a Gothic arch. All were of oak, tenoned and pinned together with oaken pins. For this description I am indebted to Mr. Morris, as also for the loan of some of the hammer beams; for the others, as also for the inspection of the title deeds of the Ship, and consequently its history, I am indebted to Mr. Oakley. I think we need not hesitate to ascribe an ecclesiastical origin and use to the Ship Inn, and to the Town Cellar also.

At right angles to this house, the Ship Inn, and on the other side of Salisbury-street bounding Kendall's-lane, and to the north of the Town Cellars and Ship Inn, is a house generally spoken of

as Sir William Phipard's. It was from a panel over one of the mantelpieces in this house that the celebrated lost Rubens was taken, sold at auction for 4s. 9d., but afterwards realising, as far as I recollect, over £900. This house never was the property of Sir William Phipard, although a daughter of the Phipard family married one Scalpin, who owned this property, which was once the George Inn. I do not know anything of its previous history, but presumably it was built at the same time as the Town Cellars, as on one end of it is a finial base of exactly the same carving, size, and character as those on the Town Cellars, and there are other characteristics about the house with regard to its doorways, windows, &c., which render it probable that it was built at the same time, and for a similar purpose as the before mentioned buildings. In the Kendall's alley wall is a curious ventilating stone worthy of notice. I found when turning over Chaucer in search of Par Adieux that in 1388 Chaucer assigned his pension as comptroller of customs of wool, wine, &c., to a person of the name of John Scalby, and that Chaucer married a sister of Catherine Swynford (or Rouet), the mistress, and afterwards wife of John of Gaunt, Duke of Lancaster. The semblance of the names Scalby and Scalpin is singular, and the more so that Henry IV., after the execution of Sir Jno. de Montacute, claimed the Manor of Canford and Town of Poole, amongst other properties, by right of inheritance, as cousin and heir to Thomas, Earl of Lancaster, the King's ancestor.

There remains now the piece of wall at the back of St. Clement's Inn, referred to by Sydenham and Hutchins as the remains of the Town Wall. This piece of wall, built of rubble and pieces of worked and unworked stone, has on the outside a long corbel plate on the south side of the door, the corbels being of half billet pattern, the billets being 13 in number; they are 8in. in width and 1ft. apart. There is in the wall a doorway arched, in width 3ft. 2in., in height 7ft. 3in. There are on the top of the wall the remains of three embrasures, in height 2ft. 9in., in width 1ft. 8in., width of piece between openings 2ft. 9in. The top of the

wall has an angular coping. The total length of wall is 37ft. Its height to top of piece between embrasures is 15ft., its thickness at the lower part is 2ft, 10in, at base of doorway, at embrasure 11in. Its aspect is W.S.W. Sydenham's plate only represents 13ft. of its length, the corbels being carried under the house, which has been built up against the wall or against the gable of a house built up on the other side and on it; the wall continues the length of the passage and then turns sharply to the eastward, the angle being well formed of ashlar. On the inside, within inn yard, may be seen where the gable end of the house was. There are also some narrow steps from the north end leading up to a narrow platform under the embrasures. These steps are eight in number; they are parallel to the wall and part of it. tread is formed of flag stones, projecting somewhat over the rubble masonry forming the wall. The width of the steps at the base is 1ft. 6in., of the tread 9in., the rise 7in. The height from the ground to the top of the lowest step is 40in. The width of the platform is 2ft. 3in., its length 16ft. 6in., and its height from the ground to the top of the platform 8ft. 6in. The wall runs W.N.W. and E.S.E. The embrasures are above the doorway which looks towards the Hamworthy shore, near the end of the present bridge, and to a spot on the edge of Poole Quay, 74yds. from the end of the great Quay. It is 92yds. from this spot on the edge of the Quay to the walls. The great Quay is 64yds. in length, with the ferry about the centre of it, so that the spot to which this wall looks, and from which it would have to be seen, is 102yds. from the ferry, and as there are the remains of a building with 4ft. stone walls at a distance of 24ft. from this St. Clement's Wall, which building extends towards the Quay, it could be seen from no other spot than the one mentioned and from Hamworthy, from the spot mentioned at the foot of the bridge, which spot laid entirely out of the road to Poole from Lytchett along the Hamworthy promontory.

I have been thus particular as to the aspect of the wall, and the points from which it could be seen, in order to compare its situation,

&c., with Leland's account of his visit to Poole, and Hutchins and Sydenham's deductions therefrom. Leland was made the King's antiquary in 1533; this office was created for and ended with him. He published his itinerary in 1545. He came to Poole from Lytchett across the ferry and says "Poole standeth almost as an isle in the haven, and hangith by N.E. to the mayne land, by the space almost of a flite shot, and in this place is a dike, and to it often cummith, throughout, the haven water, and here is an embattled gate of stone to enter into the town."

This wall and gate here spoken of, built 11th Henry VI. (1433), stood at the other end of the town from the Quay, on or about the line now taken by the boundary stones of St. James' parish, if they do not actually mark the termination and course of the wall, from a point opposite Mr. White's (the seedsman's) shop, to the back of the Railway Inn, by the New Poole Station. moat was on the outer side, and a part remained about 70 or 80 years ago (about the end of the present railway crossing and the end of the platform), when it was filled up and stables built where it was. The gate was at the end of Towngate-street. without a half-moon, referred to in an account of Major Sydenham's attempt to enveigle Lord Crawford and a party of Royalists into the town. At the end of Nile-row, where now the Three Crowns publichouse stands, was the west fort. The other end of the wall, at the end of the Parade, so called from its being the paradeground of some troops quartered here during the Peninsular War, under the Duke of Wellington (then Colonel Wellesley), was marshy ground, a continuation of the marsh now called Pitwines. The only road out of the town lay through the town gate, at the end of Towngate-street. To continue Leland's account: "The length of the town lyeth almost fully by N. and S. The Key for the shippes standith almost S.E. There is a fair Town house of stone by the Key. King Richard III. (1483-1485) began a pece of a town waulle at one end of the Kay and promised large thinges to the town of Pole." Richard 3rd's reign would be during the Perpendicular era of architecture. Leland wrote about 50 to 60 years after Richard's orders to build the wall at one end of the Quay, and distinctly says the piece of wall was at one end of the He says nothing about a gate; yet Hutchins says "King Richard 3rd, according to Leland, began a piece of the Town Wall at one end of the Quay, where in his time (1545, or a few years earlier) remained a small embattled gate and some of an embattled Sydenham follows Hutchins in his account, but goes wall." farther and says: "This gate and a portion of the wall are still in existence, crossing a narrow lane known as St. Clement's-alley, near the Quay, and may be traced westward through several stores." There is evidently with both these authors a confusion of the fortifications proper of the town, at the north side of the town across the isthmus, connecting Poole with the mainland, and the wall of Richard 3rd, at one end of the Quay. This St. Clement's wall is so situate that I think it of itself disproves Hutchins' and Sydenham's assumption that this was Richard 3rd's wall seen by Leland. In the first place, Leland could not have seen it from any part of the road taken by him, and must have gone especially up a narrow lane to find it; secondly, it is not at one end of the Quay, but 166vds, from the end of it, and about 200 from Leland's landing place. It is erected, not at the point most open to attack, namely, the end of the little channel about the end of Fish-street, but as far away from it as possible. There were large buildings between the wall and the shore, and those of stronger build. The wall was of insufficient strength for defence, and in fact its wall is of less thickness than those of the ordinary houses of that time. Its height was too little for a point of observation, and, were it higher than it is, there were buildings of still greater elevation between the wall and the haven, and the aspect of the wall was that from whence there was no approach to the town. The steps supposed to give access to the battlement are so narrow that no man at arms could have mounted them, as I can only do so by going up them sideways, and on reaching the platform there is neither room to move nor adequate defence for one's body. I think we may, therefore, with a clear conscience, destroy all claims of

1483

St. Clement's Wall to being the remains of the Town Wall erected by Richard 3rd. I should consider it to be either the garden wall of an important building, such as a monastery,—hence the corbel plate and embrasure,—or that it was built at a later date, when the ruined buildings of Poole were restored, and that it was composed of stones from older and more important buildings.

In the commencement of this paper I referred to Sydenham's statement, that in 1406 the Town Cellar was a store, and was attacked and burnt by Pero Nino. I may here say that this attack on Poole is the only recorded assault of the town from the harbour, although in 1483, Henry, Earl of Richmond, who had sailed from St. Malo, with the intention of making a descent on the Western coast of England, came off Poole harbour and would have landed, but not getting satisfactory answers from those on the shore, who were indeed partisans of Richard 3rd, he sailed back to Normandy. The account in the Spanish Chronicle of Pero Nino's expedition refers to the state of the fortifications of Poole, and is, therefore of interest to us, and I give you a brief resumé of it. In 1405 some Spanish and French privateers, the former under the command of Pero Nino, afterwards Conde de Buelna, the latter under Charles de Savoisy, Sieur de Seignelai, determined to try their fortune on the English coast. They set sail from Rochelle, reached the Cornish coast and proceeded eastward along the coast, landing occasionally for capture and plunder. On coming near Poole harbour, Pero Nino thought to repay one Harry Paye, who lived at and had possessions in Poole, some of the injuries he had inflicted on the Spanish and French vessels and inhabitants of the coasts. They entered the harbour, and came at daybreak in sight of Poole. The town was not walled, and there was a handsome The French commander, thinking it rash to tower with a cupola. attempt to land, forbade his men, but the Spaniards landed under the command of Fernando Nino (Pero's kinsman), with orders not to encumber themselves with plunder, but to plant their banner before the place and set the houses on fire. One large building was maintained awhile against them; but, when after a stout resistance

they forced an entrance, the defenders escaped at the back part; and here the invaders found arms and sea stores of all kinds; they carried off what they could, and then set the storehouse on fire. Meanwhile the English had rallied, taken the doors out of the houses, and using them as pavaises to protect them from the quarrels of the crossbows, kept up such a brisk fire of arrows that the arbalisters durst not expose themselves by stooping to charge their arbalists. Many were wounded, and those whose armour protected them were as if fledged with arrows. The Spaniards and French who landed to the support of their comrades were driven back, and sailed towards Southampton. Sydenham then says this account "evidences that the old church and tower, with a cupola had been previously erected; but that the wall which surrounded the seaward side of the town was of a subsequent date. building that was sacked and set on fire was probably that since known as the Town Cellar." They appear to have burnt only this one storehouse, full of arms and sea stores, highly inflammable contents, and such a conflagration in the Town Cellars would have left some traces on roof or walls. I have carefully examined the Town Cellars, and there are no such traces, and, as I have pointed out, the roof is a good early English roof, and presumably not built later than the beginning of the 13th century; the timbers of the roof are as old in appearance as the hammerbeams of the Ship Inn; the walls were of stone, and the roof was stone tiled; there was also no door at the back by which the defenders could escape, nor was there much space in front of the building for a large attacking There is another reason why the Town Cellar was not the store attacked and burnt. It would have been a most disadvantageous place to make a landing, as the attacking force would have had to run the gauntlet of some 200 yards in front of the town, and, the channel being narrow and the defenders active, but few of them would have reached the landing by the Town Cellars. The most natural place to land would have been at the end of the little channel, at a spot opposite the lower end of what is now known as Fish Street, where is much greater space of ground in front of the

stores, or whatever buildings may have been there situate; there was, moreover, a small lake, or inlet, there. On examining some of the old maps I find the lower part of Fish Street called Pluddie Lane. This name is now unknown in the neighbourhood, or amongst the oldest inhabitants, but it is to be found in Hutchins' map (1774), also in Sir Peter Thompson's map (1741). As this seems to be the only attack on the town from the sea, and there is in this name of the street the legend of great slaughter, I think it fair to infer that a storehouse, one of those used by Edward III., 1327-1377, or by Henry IV., in 1399, during their wars against France, stood somewhere by the end of Fish Street, and was that attacked and burnt by Pero Nino: the inhabitants of Poole of that day commemorating the slaughter by calling the street Pluddie, or Bloody Lane.

I now ask your attention to the history of the Manor of Canford, or Cheneford, of which the town of Poole formed a part, and from which we can gain some assistance towards solving the mystery of the Town Cellars and its various uses. In Domesday Book is stated "Edward de Sarisberie holds Canford of the King. Ulwen held it temp. Edward Confessor." Edward of Sarisberie was a Norman knight, whose name was Edward de Eureaux, second son of Walter le Eurus, or de Evreux, or L'heureux, Earl of Rosmar. Of Ulwen I can give you no information. In 1142 Walter, son of Edward de Sarisberie, founded the Priory of Bradenstoke (co. Wilts) of the order of Augustine, or black canons. He took the habit of a canon and was buried in the Priory. His great granddaughter, Ela, in 1198, at ten years of age (two years after her father's, Wm. de Sarisberie's, death), was, under romantic circumstances, affianced to and placed in the power of her sovereign lord, William Longespee (a natural son of Henry II. by fair Rosamund Clifford, and half brother to Richard I.) At her father's death she was only eight years of age, an orphan possessed of immense property; her relations carried her off from Canford into Normandy, and there brought her up in close and secret custody. Sir William Talbot, hearing of her beauty and wealth, in the garb of a pilgrim wandered through Normandy for two years (Dugdale says two months) until he found her, made himself known to her in minstrel guise, and brought her to King Richard, who married her to William Longespee, who, by this marriage, became possessed of Canford. Shortly after his marriage William Longespee entered on Ela's hereditary office of Sheriff of Wilts, and became Earl of Salisbury. In 1220, at the foundation of the new Cathedral Church of New Sarum, the first foundation stone was laid by the Bishop for Pope Honorius: the second for Stephen, Archbishop of Canterbury; the third for himself; the fourth by William, Earl of Salisbury; the fifth by his wife, the Countess Ela. William de Longespee, Earl of Salisbury, died at his castle of Salisbury on his return from a feast at Marlborough, where he was supposed to have had secret poison administered to him by the Justiciary Hubert de Burgh in 1226. Ela, his widow, retained the title and estates, was Sheriff of Wiltshire, and exercised the office until 1237, when she founded the Abbey of Lacock (co. Wilts) and the Priory of Hinton, and on Christmas Day, 1238, she, then being 51 years of age, became a nun in the Abbey of Lacock. In August, 1240, she was constituted Abbess of Lacock, and ruled over the monastic society there for sixteen years. She relinquished her office the last day of the year 1256, and spent the last five years of her life in perfect retirement and seclusion. She died August 24th, 1261, ætat 74, and was buried in the choir of the monastery at Lacock. Her son, William Longespee (the second of the name), was signed with the Cross in 1226. He bore the title of Earl by courtesy, but never obtained possession of the revenues, his mother being alive; yet by favour of his sovereign in 1248 he became possessed of part of Ela's possessions, and amongst them the Manor of Canford and Poole. In July, 1249, he took his second departure for the Holy Land, and at Shrovetide (February 8th, 1249-50) he was slain at Mansoura, in Egypt. His bones were afterwards buried in the Church of the Holy Cross at Acon. The night before the battle of Mansoura, Matthew Paris states that "Ela, Abbess of Lacock, had a vision of a knight armed at all points,

being received into the opening heavens. The device upon his shield she presently recognised; astonished, she asked who it was thus ascending, and being received by the angels into such glory: she was answered in a distinct and audible voice 'William, thy She took note of the night, and the vision was fulfilled. This William Longespee came into possession of the Manor of Canford and Town of Poole in 1243. In 1248 he granted to Poole that first charter which was the foundation of their privileges, this grant being just previous to his departure for the Holy Land on that expedition in which he was killed. His son, William (the third) Longespee, succeeded to the estate of his father. He was a minor at his father's death, and in 1257 received such injuries in a tournament at Blyth, in Nottinghamshire, that he died. Holinshed says this happened in 1266. Thus the Countess Ela lost her husband, her son, and her grandson by violent deaths. foundation and endowment of ecclesiastical buildings and institutions was a prevailing feature of the religious feeling of the age during which Ela lived, and this spirit of religion seems to have been largely developed in her, and does it not appear rather inconsistent for her to have founded an Abbey or Priory elsewhere and to have neglected the Manor whence, as a child, she was carried away, and which was replete with tender memories of her youth, and associated with others and more dear of her husband, her son, and her grandson? May this not have been the place of her retirement from her duties as Abbess in 1257, and may she not then have either built or finished this monastery of St. Clement's? In 1348 Poole was visited by the Black Death, which made its appearance in England first on the Dorsetshire coast. Capgrave says that in many ports in Dorset nine-tenths of the population were destroyed, and lord's rents and priest's tithes ceased to be paid. Probably at this time St. Clement's monastery ceased to be such, and the buildings fell into a ruinous state. In 1362, on the death of Joan, widow of Earl Warren, the Manor reverted to the Montacute family in the person of William Lord Montacute, 2nd Earl of Salisbury of that name, who was seised of Poole borough at

his death in 1398. This and the preceding William, Earl of Salisbury, his father, bore the title of King (of the Isle) of Man. In 1398 there succeeded to the Manor the nephew of the last Earl of Salisbury-viz., John de Montacute, 3rd Earl of Salisbury of this family, a chief of the Lollards, of whom, it is said, he caused all the images which had been set up in the chapel at Shenele by his wife's former husbands to be taken down and thrown into obscure places, but allowed the image of St. Catherine to stand in his bakehouse. He was executed at Circnester, A.D. 1400, for complicity in a conspiracy against Henry IV. His lands were forfeit, the King uniting them to the Duchy of Lancaster, which he claimed by right of inheritance as cousin and heir of Thomas, Earl of Lancaster. It is probable that this Lollard, Earl of Salisbury, would but complete that ruin of the monastery which neglect and time had already begun. From this time, 1400, until 11th Henry VI. (1433), the manor was held by various favourites and relations of the reigning princes; but in 1433 it was granted to John, Duke of Bedford. On his death, 1435, it reverted to the King, who in 1438 granted it to Henry Cardinal Beaufort, Bishop of Winchester, who conveyed it to John, Duke of Somerset, great grandson of John of Gaunt, and third Earl of Somerset. On his death in 1444 the manor descended to his brother Edmund, Earl of Moreton, Marquis of Dorset, on whose death it passed to his son Henry, Earl of Moreton, who was beheaded 5th Edward IV., 1466, after the battle of Hexham. The estate then reverted to the Crown.

As I have now traced the history of Poole through that period in which, judging from its architecture, the Town Cellar was built and restored, I will not pursue it farther, but after a short account from Hutchins of two seals, will recapitulate the points which lead me to state that this building, known as The Town Cellar, was originally built as the church of the Monastery of St. Clement's. Hutchins speaks of two seals thus:—"The late Dr. Richard Rawlinson had a round seal, on the verge of which was 'S. Convent de Pool,' within a lion coward. As there was no religious

house in this town, it seems rather to have belonged to South Pool, or Pool (co. Devon), where there was a small priory." An old seal of the Corporation of Poole from Mr. W. Bristow's collection. of which the following is a correct description, is at Strawberry Hill. It is a brass upright seal, about two inches high, with a small trefoil handle. The field is circular, nearly an inch in diameter, bearing, in high relief, a lion passant gardant, surrounded by a scroll, inscribed with the following legend in old English characters: "S. Contrar (otulatoris) de Pool," the seal of the Controller of Poole. I have omitted to mention, by the letters patent of Henry VI. in 1433, Poole was made a port of the staple, and I have here an impression of the seal of the staple. With regard to the two seals mentioned, Hutchins says after the account of the seal of the Controller of Customs of Poole: "This seal, to which both of the above notices refer, is now ascertained to have belonged to Poole, in Dorset, and was afterwards presented to the Corporation, in whose possession it now is." The seal the Corporation has is S. Contrar de Pool in old English characters, and I do not quite understand how Contrar can be read convent. I rather incline to the belief that Dr. Richard Rawlinson's was an old seal of the monastery or convent of Poole, Dorset.

I have now given you all the information I have been able to gather. I regret it is not more authentic, but I think it is sufficient to prove that the Town Cellar was the Church of the Monastery of St. Clement's, that the Ship Inn was either the refectory, or more probably the chapter room, that the house bounding St. Clement's-lane and the buildings in Scalpin's Yard were a portion of the monastery, and that the St. Clement's wall was not the wall of Poole at all, but either the garden wall of the monastery or a later erection from fragments of the monastic buildings, and that the gate and wall built by order of Richard III. was across Paradise Row. The monastery was founded by Ela, Countess of Salisbury, between 1220 and 1261. (The period of Early English architecture was from 1189 to 1272). In 1348, owing to the plague, the population being decimated, the monastery

was abandoned, and fell into ruin, which ruin was probably assisted by the Lollard Earl of Salisbury, between 1398 and 1400. In 1405 Poole was attacked from the harbour side by Pero Nino's expedition, but the landing was made at the end of Fish Street, and a storehouse there was burnt, the street being afterwards called Bloody Lane, and at this time the Town Cellar was not attacked or set on fire, as is evidenced by the Early English roof still standing; but it is quite possible, as Edward III. made Poole a magazine for war stores in 1365, and at some time in the reigns Henry IV., V., or VI., that is between 1399 and 1461 (the period of Perpendicular architecture being from 1377 to 1461), that this Church of St. Clement's was converted into a storehouse, and repaired in Perpendicular style for that purpose, or possibly when Poole was made a Port of the Staple, 1433, into a woolhouse, though of this I have no corroborative evidence to offer. Between 1483 and 1485 Richard III. caused to be built a water gate at the end of Paradise Row, and spanning it; with probably a short wall to the edge of the Quay adjoining it, the wall of the Church of St. Clement's being cut down for the introduction of the large corbel still there, and which has supported a greater weight than the internal corbelling could resist, the wall being driven in, and the large corbel pressed downwards, so that the wall of the building is no longer perpendicular, or the upper surface of the corbel at right angles to it, or horizontal. With regard to the title given to The Town Cellar of King's Hall, there is a legend (which I have not yet been able to corroborate), that Henry VI. visited Poole and stayed in it. It may have been so called, either from its reversion to the Crown, and Henry's claiming it by right of inheritance from Thomas of Lancaster, or from the Montacute Kings of Man, but probably from its reversion to the Crown, which happened constantly until 1553.

This paper was written for and intended to be read at the meeting of the D.N.H. and A. Field Club at Poole, on September 13th, 1887, but from want of time on that day was deferred until

now, and fortunately so, as it enables me to supplement it with a curious occurrence. On September 15th, 1887, at nine a.m., the paviour, a man named Gover, who was relaying the pavement in front of the New Inn, in Thames Street, came up to inform me he had found something he thought I should like to see. I went down and found, as I expected, a large stone, evidently a portion of the wall of the Church of St. Clement's, connecting the parts dissevered by Thames Street passing through it. This stone he was obliged to remove, and did it with some difficulty. I standing by to watch the operation. Before the stone was removed the engineer of one of the local boats (named Norman) came up, and pointing to the Cellar said "I saw a painting of that place about 35 years ago. I went to see the cartoons exhibited at Westminster Hall with my wife, and when we came to Poole we recognised the place at once. I obtained the following data from him. picture was painted in oil, in size about 2ft. 6in, by 1ft. 6in., having the name of the painter in the left-hand corner, and in the right, in pale yellow letters, the following inscription :- "The Church of the Monastery of St. Clement's, Poole, Dorset, 1612." It was hung next to a painting of the burial of Sir John Moore. subsequently corrected the date of seeing it to May, 1847, and described the painting as follows:--"There was no Quay, but the vessels were loaded in the Channel from carts driven into the water to their sides. The Town Cellar extended farther than now, in a westerly direction, and turned sharply towards the back of St. Clement's Inn. The building had but two doors, and at the east end was a large archway, under which the carts were passing, and this archway was surmounted by a square tower and a cupola. I have endeavoured to trace this painting, but, although Mr. Rawle has been most indefatigable in his exertions to trace it for me, up to this time the search has been ineffectual. He has obtained catalogues of cartoons exhibited in 1843 and 1845, but up to the present time, not of 1847, although he has applied to the Houses of Lords and Commons and the Metropolitan Board of Works, and in fact nearly every authority in London; but I have by no means

given up hope, and should this picture be found I shall endeavour to get a photograph of it, and shall ask to have it inserted in the next copy of the Transactions, should it appear too late to accompany this paper.





The Porset Colony in Massachusetts, A.S.A.

By T. B. GROVES.



HE formation of the settlement of New Plymouth might be taken as the starting point of a history of the Dorset Colony in Massachusetts were it not for the fact that a remarkable man, whom we regard as a Dorset worthy, attempted some years previously the settlement of the north-eastern part

of the continent of America.

Sir Walter Raleigh, whose name and achievements shed lustre on his age, and are still the glory of the West of England, especially of Devon, which gave him birth, and Dorset, where he lived, started for America in 1579 in company with his half brother and a number of intending settlers on a private venture in colonisation, which, owing to the opposition of the Spaniards, proved unsuccessful.

In 1584 he again started on the like errand, and actually commenced the settlement of a large tract of country, which, in honour of his beloved Queen, under whose protection and patent he was acting, he named Virginia. The limits of this territory, however, corresponded by no means with those of the modern State of that name, but were far more extensive. However, Raleigh's success was but partial, and, after a few years of struggle, his connection with the colony ceased.

In 1621 we find the "Plymouth Council" in possession of a charter, dated 1606, conveying the right of most extensive tracts, embracing both coast line and interior, stretching from Nova Scotia to South Carolina, and reaching to the Silent Sea—i.e., the Pacific Ocean.

It was to this trading body that the Pilgrim Fathers applied for permission to settle within its territory, and by consent of the company and permission of the King (James 1st) the request was granted.

This exemplary body of men was composed of refugees from ecclesiastical tyranny, who, in order to enjoy liberty of conscience and freedom to worship God, had crossed the sea to Holland, finally settling down at Leyden under the pastorate of a Mr. Robinson. Getting tired of the conditions under which they lived there, afraid of the contagion of the dissolute manners of their Dutch neighbours, and, moreover, being strongly imbued with Republican notions, they resolved to emigrate to America, and accordingly, having made the arrangements already referred to, on July 21st, 1620, they set sail in the Speedwell, 70 tons, for Southampton, where part of the company were transferred to the Mayflower, a hired ship of 180 tons. (I may mention that a ship of this name is referred to in the Weymouth records under the year 1610). From Southampton they sailed, 120 in number, on August 5th, but, the ships proving leaky, they had to put in at Dartmouth and again at Plymouth. Finally, 19 of their number having given up the project, the remainder were accommodated on board the May Flower, which then proceeded to sea. Of the company 70 were men, the rest women and children. After two months and three days at sea they sighted Cape Cod on November 9th. During the voyage one of the company died, and a child was born and received the appropriate name of Oceanus (Hopkins). On the 11th they cast anchor in the harbour, and then proceeded to draw up the following "declaration," which was signed by all the men:-" In the name of God. Amen. We, the undersigned, true subjects of our dread ruler, King James, who have undertaken this journey

for the glory of God and the furtherance of the Christian faith, as well as for the honour of our king and country, to plant the first colony in the northern parts of Virginia, unite and bind ourselves by the present act, mutually and most solemnly in the presence of God and one another, to a civil state body, to our better ordering and to the upholding and furthering of the above-named aims, and by virtue of this from time to time to arrange, lay down, and introduce such right and reasonable ordinations, resolutions, constitutions, and offices as shall be found fitted for the general good of the settlement. To which we promise all due submission and obedience."

This voluntary declaration, showing the true animus of the settlers on reaching their destination, gives no evidence of Republican sentiments, whilst it is full of unaffected piety and true patriotism that does them infinite credit.

John Carver was appointed first Governor. Miles Standish, who is described as being of small stature and insignificant appearance, but of undaunted courage and inflexible endurance, was their military leader, and was sent out with some companions to reconnoitre the country. After many hardships, dangers, and losses they determined on fixing their settlement at a certain harbour which, in honour of their last port of departure, they named New Plymouth. Their sufferings during the first winter were very severe, and it seems the new arrivals were in no way benefitted by the traders in fish and furs, who, hailing from Bristol, Plymouth, Poole, Weymouth, Dorchester, and Exeter, had had commercial interests in the Bay of Boston for years prior to this new settlement. Edmund Burke, in his "Account of the European Settlements in America," states that nearly half of them perished from scurvey, cold, and want; but the remainder were not They were soon joined by friends in great numbers dismayed. until the King became alarmed and endeavoured to prohibit emigration. Amongst those seeking and soliciting grants in New England were the Pelhams, the Hampdens, the Pyms, and even Oliver Cromwell, "when Archbishop Laud, unwilling that so

many objects of his hatred should be removed out of the reach of his power, applied for and obtained an order from the Court to put a stop to these transportations, and thus he kept forcibly from venting itself that virulent humour which he lived to see-the destruction of himself, his religion, his master, and the constitution of the country." Here now is a theme for the consideration of thinkers —what would have been the result had these potent spirits been permitted to leave the country and expend their energy in taming the wilderness and building up from its foundations a new nation? Firmly believing that the "Times make men not men the times," I think the course of events would only have been delayed by the circumstance. The printing press had long been at work, and, men's minds having become somewhat enlightened, changes had become inevitable, and awaited but a choice of instruments. This prohibiting order was obtained February 7th, 1633, but was not strictly carried out. The district had long before this increased greatly in population, for in less than six years seven considerable towns had been built and settled in the colony. This amount of success was not effected without interfering with the "salvages," whose "courtesy" to the settlers on their landing had been a subject of favourable remark. Unhappily, a case of kidnapping by a white captain inflamed their hatred and suspicion of the new comers, who were, however, entirely innocent of any complicity in the crime. Indian wars followed, attended with great cruelties and slaughter on both sides. Famine, pestilence, fire-water, finally disposed of the native Indians, whose scanty remnants fled westward to escape the fatal influence of civilization. Yellow fever and small pox raged among them at times with great violence, depopulating whole districts, which gave rise to the pious comment "The hand of Providence is notable in these surprising instances of mortality among the Indians to make room for the whites." In the north-western territories of Canada small pox is at present playing havoc with the natives, but in this case Providence is playing another part, and vaccination, a providential boon, is made compulsory on the wild man, on whose virgin

constitution these new diseases have so strangely fatal an effect.

The severe type of character affected by the Puritan emigrants seems not to have been abated by their new surroundings but rather intensified. The discipline of the society was so severe that splits occurred, ending in secessions, and sometimes resulting in the opening up of new settlements. Some even went so far as to renounce all connection with the scheme, preferring the old tyranny at home to that of the elders of New Plymouth, who, adopting the Books of Moses for the law of the land, imitated the Jewish polity in almost all respects. Cruel laws were passed against Baptists, Papists, Idolaters, Quakers, &c. To the latter sect they behaved so harshly, inflicting death in not a few cases, that the Royal authority had in 1661 to interpose to restrain them. All this was a hindrance to progress, the more so as it prevented the effectual use of the secular arm in chastising the Indians, who daily harrassed and murdered the inhabitants with impunity, because, forsooth, "many of the officers and soldiers were under a covenant of works." The bitterness of their enthusiasm was also painfully illustrated by the persecution of so-called witches and sorcerers which invaded the colony like an epidemic, and was the cause of countless sufferings and the death of hundreds of innocent victims. It is needless to add that the colony outlived all this enthusiasm, and that the New Englander of to-day is not pronouncedly religious. Notwithstanding such extraordinary developments as Shakerism, Revivalism, and the Salvation Army, the average Yankee is shrewdly suspected of holding the same opinion as one of Russell Lowell's characters-"They didn't know everything down in Judee."

So early as 1624 the Rev. Jno. White, of Dorchester, in this county, attempted to found a settlement like that of New Plymouth at Cape Ann, Mass., and placed the direction of it in the hands of Mr. Roger Conant, "a most religious, prudent, worthy gentleman," one of the seceders from the old colony; but the design, through many discouragements, for a while almost fell through. However, he held his ground with only three companions until new arrange-

ments were made by White with the Plymouth Council, which body sold, by deed bearing date March 19th, 1627, unto some knights and gentlemen about Dorchester—viz., Sir Henry Roswell. Sir John Young, Thomas Southcott, John Humphrey, John Endicott, and Simon Whetcomb—that part of New England which lies between the rivers Merrimac and Charles, at the bottom of Massachusetts Bay. To these were subsequently added, by the influence of Mr. White, a number of persons of quality from the neighbourhood of London, from Lincolnshire, and elsewhere. These were mostly men of strong religious convictions, so that the enterprise, losing its commercial character, entered on another phase, and was announced as a place of retreat for conscientious The King having confirmed the purchase by Nonconformists. charter on March 20th, 1630, a party numbering 140, consisting mainly of severe Puritans recruited from Dorset and neighbouring parts of the country, many of them of good position, set sail from Plymouth, Eng., in the ship Mary and John, Captain Squeb commander. The party was led by their pastors, John Maverick, John Warham, and, according to some accounts, by John White in person (but that is a moot point and need not be insisted upon), and, after an uneventful voyage, landed at Nantasket, whence they proceeded to Mattapan, which place they at once renamed Dorchester. The following names, having more or less a local ring, are those of some of the party-viz., Rossiter, Ludlow, Glover, Johnson, Tory, Smith, Gallop, Hull, Hill, Southcott, Lovell, Pinney, Richards, Way, Williams, Tilley.

The Rev. Jno. White, called the "Patriarch of Dorchester," became Rector of Holy Trinity in 1606. He was at first a moderate Puritan, and conformed to the Church of England; but at the beginning of the Long Parliament (November, 1640) he saw fit to change his opinions, and not only himself took the Covenant, but, by his great influence with the townspeople, induced them as a body to follow his example. In 1643 he was chosen one of the Assembly of Divines. When Prince Rupert was in these parts his house was plundered and his library carried away; whereupon he

retired to London and was made Minister of the Savoy, and afterwards of the parish of Lambeth. When the war was over he returned to Dorchester. He died suddenly July 21st, 1648, and was interred in the porch of St. Peter's Church. His name is still held in affectionate remembrance by Bostonians, who not unfrequently journey to Dorchester for the express purpose of visiting his last resting place. Of this I became aware when visiting the County Museum Library for the purpose of this paper. On entering the room I was at once introduced by the Curator to a lady from Dorchester, Mass., who had come on this very errand. The coincidence was singular. Mr. White influenced the politics of the colony up to the time of his lamented death, but how the colony progressed subsequent to this event I have not been able to ascertain, my next entry bearing date 1726.

Up to the year 1726 the Dorchester district was 35 miles in length, and in some places six or eight miles wide. In that year a district named Stoughton was removed from it, and Dorchester became a comparatively small town, being narrow and but nine or ten miles in length, the upper part woodland and unsettled. Since then the town proper, now containing 14,445 inhabitants, has been incorporated with Boston, of which city it is the 16th Ward. It appears to have rapidly increased since 1855, when an invitation, signed by some of the principal inhabitants, was sent to the Mayor of Dorchester, Eng., making the modest request that a deputation might be sent across to assist at the celebration of the 79th anniversary of the birthday of the nation, and giving particulars of the then population, value, &c. The former was stated to be 8,000, the value 10,182,400 dollars. It is, in fact, one of the wealthiest towns in the States, and contains various extensive manufactories. The main object of the letter, however, was genealogical research, a subject dear to all Americans, however pronounced their Republicanism, and enquiries were, I believe, set on foot by Mr. T. Coombs, then mayor, in order to gain information on the points indicated. I have not been able to find the answer that was sent, but I believe I am right in stating that the connection

between the *personel* of the two towns was still traceable, notwith-standing the lapse of time and the changes inevitable thereupon. It is a curious fact that there are no less than ten Dorchesters in America. This is, doubtless, partly due to the fact that there are two Dorchesters in England; partly, also, I suspect, to these towns having conferred titles on noble families whose scions might be supposed, not improbably, to have been concerned in some way in the planting of America.

I will now proceed to relate what I have been able to ascertain relative to the settlement of Weymouth, which, like Dorchester, may be regarded as an offshoot of New Plymouth. I may state in the first place, but not at all in the way of grievance, that in all America there are only three Weymouths; but then, on the other hand, Weymouth, Mass., claims to be the second oldest settlement in the State. I confess I cannot quite make out the truth of the assertion; but, no matter, the claim seems to be recognised. In a very recent American Gazeteer Weymouth is described as "a postal village and township, Norfolk County, Mass., twelve miles south of Boston. It is the second oldest settlement in the State, dating from 1626. It has a high school, a national, and a savings bank, and a weekly paper. The township contains several other villages, chiefly engaged in manufacturing boots and shoes. lation of township 10,571." In the American "Atlas" of Thomas Jeffery's, 1775, I find Weymouth placed near the source of a river of that name which runs into one of the many inlets on the south of Boston Harbour. Eastward of this flows the River Way into another similar inlet, so there is little doubt about this colony deriving its name from, and possibly owing its origin to, the ancient and loyal borough in which I am privileged to live. From the "Ecclesiastical History" by Cotton Mather I quote the following: "One Mr. Weston, a London merchant of good note, interested at first in the Plymouth design, afterwards deserted it, and in the year 1622 sent over two ships, with about 60 men, to begin a plantation in Massachusett Bay. These beginners being well treated at Plymouth travelled more northward unto a place known

since by the name of Weymouth, where these Westonians, who were Church of England men, did not approve themselves like the Plymouthians—a pious, honest, industrious people—but followed such bad courses as had like to have brought a ruin upon their neighbours as well as themselves. Having by their idleness brought themselves to penury, they stole corn from the Indians, and in many other ways provoked them, although the Governor of Plymouth writ them his very sharp disapprobation of their proceedings. satisfie the exasperated salvages divers of the thieves were stockt and whipt, and one of them at last put to death, by this miserable company, which did no other service than to afford an occasion for a fable to the roguish Hudribras, &c." This is, of course, very painful reading, and one would like to believe that the account might have been painted in extra dark colours in consequence of the fact that the Westonians were Church of England men. But Talvi, in his "History of the Colonization of America," 1851, gives an equally unflattering account of Weston and his myrmidons. He states that "one Weston, a merchant, who had adventured largely in this expedition (to Plymouth), and had now become dissatisfied with his gains, resolved to commence a new settlement on his own account, and, having got a letter of possession for a piece of land in Massachusetts, sent thither 60 men in two ships under the command of his brother-in-law." These men are described by the historian as useless vagabonds, and were confessed by himself (Weston) to be "tolerably rude and profane." Another writer says "Mr. Weston's people are in the worst possible condition, and to all appearance not calculated for the society of an honest man." However, in spite of warning, they were received by the Plymouthians and entertained for some months (a charitable and highly creditable action on the part of the Puritans) whilst the strongest of the party journeyed to Massachusetts, where they selected Wessagussett, now Weymouth, as their place of settlement. These men did not belie either their reputation or their looks, and earned, as we have seen, both the hatred and contempt of the Indians. Weston himself seems to have been worthy of his following. The settlement, having been abandoned by Weston's people, was again peopled in 1623 by Captain Robert, son of Sir Ferdinand Georges.

Among the records of Weymouth, England, is a letter bearing date October 22nd, 1621, which is thus summarised in Mr. Moule's excellent Calendar: "The Mayor is to write to 'Mr. Mayor of Exceter' to ask what 'they of Exceter intend to doe touching Sr. ffardinando Gorges proiect about the plantacion and ffyshinge att New England." The family of Gorges were landowners in Dorset and Somerset. Sir Ferdinand was a son of E. Gorges, Esq., of Bradpole, and the Robert here referred to was in 1623 appointed Governor of New England. But he soon became disgusted with Wessagussett and left the place, taking with him the greater part of his following. The Rev. William Morrell, a Church of England clergyman, remained some little time longer, and then, failing to see any hope of establishing his church in the colony, repaired to Plymouth, and thence took passage for England. In the course of 1624 there came in other settlers from Weymouth, England, accompanied, and probably led, by a Nonconformist minister named Barnard. Nothing more is known of the personel of this party. In 1633 it was still spoken of as a small village, though in the previous year it had been taxed for general purpose to the extent of £5, Boston contributing £8 and Salem £4 10s., showing the relative importance of the towns at that time.

Probably the most important addition to the settlement at any one time in the history of the town was made in 1635, when the Rev. Joseph Hull obtained permission from the General Court to settle at Wessagussett, with 21 families, consisting of about 100 persons, hailing from the port of Weymouth, and natives of the district and of the neighbouring county of Somerset. On September 2nd the town was erected into a plantation, equivalent, probably, to an Act of Incorporation, and the name Wessagusset, or, as some have it, Wessaguscus, was changed to that of Weymouth. A complete list of the followers of Hull has been retained, and on being analysed it has been ascertained that out of the 21 families not more than six were found to be resident in the

Weymouth plantation one generation afterwards. In the list of this company Joseph Hull is described as of Somerset, a minister, aged 40 yeare. He was accompanied by his family of eight persons and three servants. The Dorset contingent comprised Thomas Holbrooke, of Broadway, and family of five persons; of the remaining number the greater portion have no local origin assigned to them.

Having been ordered to send a deputy to the General Court, William Reade, of Batcombe, tailor, was selected. During the years 1635-6 "commissioners were appointed to establish the bounds between Mount Wollaston and Weymouth, of which Fore River and the Smelt Brook formed a part, thence by a straight line running south a little westerly, until it reached the line of Plymouth Colony; also between Weymouth and Bare Cove, afterwards Hingham, of which line Back River and a creek called Fresh River former a part, thence on a line nearly parallel with the western boundary to the Plymouth Colony line. These bounds, which were the more ancient ones re-established, have remained to the present time with little, if any, change."

"For the better protection of the various towns in the colony from the Indians it was ordered by the General Court that no dwelling house should be built more than half-a-mile from the Meeting House." However, notwithstanding this prohibition, the people of Weymouth soon scattered themselves over a territory from two to three miles in extent, the larger number living in North Weymouth, commonly known as Old Spain. The houses of the inhabitants were mostly rude structures built of logs, and thatched with the coarse grass found at the head of the beaches above the salt water, which was carefully preserved for the purpose by order of the town.

The Indian title to the district was extinguished by purchase April 26th, 1642. A copy of the instrument is extant, and will be found at large in Mr. Gilbert Nash's interesting sketch of Weymouth. It is couched in very quaint language, and contains abundant evidence that the settlers knew very well how to drive a

hard bargain. The "consideration" was "Six Acres of ground empayled and broken up and one house, as also Foure and Twenty Acres of ground lying neare ye small pond neare ye plantation or Towne now cald Waymouth." The names of the signatories of the document were on the part of the settlers James Parker, Will. Jefferay, William Carpenter, John Uppame, Thomas White; on the part of the Indians Wampetuc, Webcowette, Nateaunte, Nahauton. The witnesses were Edward Bennett, James Luddon, Thos. Holbrooke. The last and of course all of the Indians affixed their marks only.

The permanent increase of the town was a good deal interfered with by repeated emigrations. On one occasion the Rev. Samuel Newman led forth to a place called Rehoboth no less than 40 families. "Maine, New Hampshire, Vermont, Rhode Island, and Connecticut made large demands. Then followed the calls from New York and the other middle States, and still later the vast West, which have all been abundantly answered, until not a State in the Union, and hardly a county or town, but has one or more of the sons of Weymouth to represent it."

However, I have followed up my subject, the settling of Weymouth, far enough; those interested in noting its gradual rise to the happy position it now holds, or care to trace the part it played in Indian wars, or those still more momentous wars of the Revolution and the attempted secession; or can find amusement in reading records of Church troubles, Civil Government, and the like, will find all they need between the covers of the exhaustive work of Mr. Nash, which I have already referred to and to which I owe many obligations. I will now proceed to relate my own experience of what I may call New Weymouth.

Before starting on my trip to America I made up my mind to devote a day when in the neighbourhood of Boston to a pilgrimage to the town which, bearing the name of the place of my birth, caused me to feel for it a certain amount of sympathy.

One object of my visit was to deposit with the local Historical Society a copy of Moule's "Catalogue of the Charters, Minute

Books, &c.," of the borough of Weymouth, together with some photographs of the place. These were gratefully accepted and acknowledged in an official letter, stamped "Weymouth Historical Society. 1879," and bearing on a scroll the legend "Patres precipuo honore habeamus." In a private note accompanying it the secretary of the society remarks "Our towns are kindred not only in name but also by many ties of association. Many of our people came from your town, and all of our memories of old Weymouth are pleasant." The worthy secretary had doubtless good reason for confessing this relationship, but the time at my disposal and the circumstances attending my visit did not, unfortunately, enable me to pursue the enquiry. Of streets properly so-called Weymouth has none, and of the names I observed few bore any resemblance to those I have seen mentioned in the old records of Weymouth, England. The geology of Weymouth, Mass., is singularly different from that of Weymouth, Dorset. The underlying stratum is granite imperfectly crystallised, pierced with beds of amygdaloid trap. Next comes beds of dark slate or shale containing large quantities of iron pyrites, and cut by quartz veins, in which are found fine crystals. Indications of the Glacial period are well marked and abundant. The hilly rolling surface of the district is covered with a scanty soil not conducive to successful agriculture.

On Monday, September 15th, 1884, armed with a letter of introduction to a most respectable citizen of Weymouth, I took my place in the 10.30 train of the Old Colony Railroad. The essential differences between railway travelling on the two continents are so well known in these days of travel par excellence that I need not dwell upon them, but I might perhaps be permitted to digress so far from my subject to refer to a fact that somewhat astonished me. Before my departure I had talked matters over with men conversant with America, and by one of them I was gravely warned not by any means when addressing Americans to refer to them as "Mister;" the proper thing was John, Thomas, or whatever the christian name might happen to be. But what did I see on the envelope enclosing my introduction —nothing less

than this, "A. B., Esq., East Weymouth, Mass." The gentleman in question was, as I have stated, a most respectable, and, indeed, influential man, and would in England have been entitled, according to modern usage, although engaged in trade, to be so addressed. But in republican America! This little incident served, amongst other things, to convince me that our cousins across the water are not, after all, so very different from ourselves, and that they are gradually accommodating themselves to the ways of the world in general, and especially of that portion of it from which they mainly derive their origin. I now quote from my diary. mouth, Mass., is really a group of villages, comprising W. Landing, a small port up the river, North W., South W., and East W. At the last place I found my introduction not at his place of business—it was closed—but at his private residence. I soon found out that I had selected an unfortunate day for my visit; that nearly all the commercial establishments were closed in consequence of the burial of a much-esteemed inhabitant, who was to have a public funeral; and, worse still, that my friend was to superintend the organisation of the procession. He, therefore, could personally do nothing for me, but, having kindly placed his trap at my disposal, he directed his nephew to drive me round and show me the neighbourhood. Under his kindly and intelligent leadership this was duly accomplished, everything of interest being pointed out, and every enquiry answered in the most obliging manner. I may at once state that Old Weymouth and New Weymouth bear no resemblance to each other except in name. Proximity to the sea, without the least similarity of coast-line, is almost too remote a feature to be noticed, and certainly could not have had influence in the choice of the name. East Weymouth is the principal seat of trade, but of the life of the place I really saw nothing, a loss by no means compensated by seeing what I did not want to see-a grand Masonic funeral. The scenery of the district is of a very ordinary character, and does not call for description. The houses are nearly all detached dwellings, built of wood, resting sometimes on piles, sometimes on a few courses of stone-work, to keep them

from direct contact with the ground, and to lift them in winter out of the snow. They are all exceedingly neat and well kept, with plenty of bright flowers in the windows, and generally with a well cultivated garden, with fruit trees, adjoining. I did not notice a single mean-looking house in the district, and was led to enquire where the poor lived. told there were but few to be found about there, work being abundant and fairly well paid. The humbler operatives joined in the occupation of houses, and, being as a rule as self-respecting and, indeed, respected as their better paid companions, the village had to my eyes an unusually well-to-do aspect. That this state of things is by no means peculiar to this district will be readily understood by any one who has read or will read (which I most strongly advise) a most interesting work, written by my fellow townsman, Mr. D. Pidgeon, and entitled 'Old World Questions and New World Answers.' In this work, a sequel of his 'Engineer's Holiday,' he describes most pleasantly and minutely the Organisation of Labour in New England, the mode of life of the operatives, and the details of manufacture, especially as regards Connecticutt, where water power is very generally obtainable, and is as a rule very carefully utilized. Here however, at Weymouth, no such advantage offers itself, so that its apparent prosperity must be due to something other than natural causes. However, there is even here a pauper class, almost deserving the name of hereditary, but these are very few in number and are provided for on the Poor Farm, where also in the farmhouse attached labouring men belonging to the noble army of bachelors are sometimes lodged and boarded until such time as they see fit to change their condition of single for that of double blessedness and responsibility. course, inevitable with all communities that some of its members, badly conditioned from birth, will be no more able to stand alone than can an empty sack. Weymouth is no exception to the rule. The cemeteries, of which I visited two, are of considerable interest, some of the stones, very humble memorials many of them, dating back to the earliest times of the colony. I was told that at

Dorchester graves are still to be seen with the heavy rough stone covering to prevent the depredations of wild beasts, who would else in the half savage state of the country have spoiled the graves of their sacred contents. My guide was especially careful to point out the resting places of his ancestors, and evinced the desire which is very general in America to connect himself with an English, and especially a Puritan, descent. At the present time the English are decidedly in vogue amongst the Americans of the more sober sort, and complaints from the more pronounced Yankees are not unfrequent, denouncing the aping of English speech, dress, Indeed, in these eastern states it is a rare thing to meet with the American of romance. So nearly have the two nations approached each other in outward characteristics that I myself, English of the English as I fancied, was more than once asked if I were not an American! Blood is thicker than water. and this, now that the passions excited by the Revolutionary war are subsiding, is declaring itself, notwithstanding the enormous influx of other nationalities, to say nothing of the detested Irish element. The cemeteries were entirely open to the public, so that we were able to drive up and down their well kept roads without let or hindrance. One peculiarity I noticed was the frequency of family vaults excavated out of the hill side, with handsome stone doorways bearing the name of the family appertaining to it. The greensward was not very well kept, and at the cemetery where the funeral was to take place not less than a dozen men were busily employed in giving an air of tidyness to the place by cutting the long grass and sweeping the paths. returned from our drive in time to see the procession. It was headed by nearly 100 Masons dressed in blue military uniform with swords and cocked hats. Then came about the same number of Oddfellows, followed by a long line of ordinary Freemasons dressed in plain clothes and the usual apron. Three drummers came next, beating time on the side drum. Then followed the hearse, neat and simple, and of the usual funereal black colour, drawn by two horses. The procession was closed by a long string

of private carriages. As the hearse passed the onlookers made no sign, and mine was the only hat raised. The whole affair was very well organized, as such things usually are in America. Demonstrations, with, of course, the inevitable procession, are held on the smallest excuse; in fact, the marshalling of them and the provision of the accessories, including, possibly, enthusiast crowds to order, is a regular branch of trade in the larger cities where 'Campaign Goods' are often seen advertised."

On returning to Boston I changed on board the train my ordinary return for a "stop-over ticket." This was done as a matter of course without payment, and enabled me to visit North Weymouth, which lies nearest the sea of the four villages, in fact, may be said to lie on the Bay of Weymouth. Let no one suppose for a moment, however, that it bears even the remotest resemblance to our beautiful bay. It is not without attractions of its own, nevertheless, being a narrow sinuous arm of Boston Harbour. It has a shingly shore well fringed with bushes and trees of moderate height. small promontory, whence I looked upon it, yielded an abundance of wild barberries, and the well known odour of Sweet Gale (Myrica Gale or some closely allied species) was at once recognised. A number of small yachts, painted white and all of one pattern, with one mast stepped as far as possible forward, were scudding through the water or lying anchored in the offing. These for the most part belonged to the proprietors of the villas, of which North Weymouth mainly consists. Returning from the shore, innocent, by-the-bye, of bathing machines, I sought in vain for a restaurant, hotel, or something of the kind, and had, therefore, to quench both hunger and thirst simultaneously by a frugal repast of pears, which I ate sitting on a doorstep! I was, I fancy, a victim to Local Option, the Maine Liquor Law, or something of the kind! I was not sorry to reach the "Brunswick" at Boston, which I have no hesitation in saying was the best of all the hotels I used when in America, not excepting the "United States" at Saratoga, with its dining-room accommodating 1,000 guests, and its army of 150 black waiters.

My tale is now told, and I will only add one question.

Weymouth, Mass., can maintain itself in prosperity by the manufacture of boots and shoes (it has also a foundry where nails are made in some quantity), why cannot Weymouth, Dorset, do the same or something like it? The answer is not far to seek—we lack the spirit of enterprise. Weymouth, Mass., enjoys no special advantages; it has no special facilities for procuring leather—for instance, there are no tan yards there, neither has it cheap motive power. We, in fact, have greatly the advantage in this respect, for the outflow of our Backwater could, and, were it in America, doubtless would, be utilised, as are the Falls of the Naugatuck, the Housatonic, or the Passaic.





Occurrence in Porsetshire of "Butalis Siccella," Zeller,

A MOTH NEW TO BRITAIN.

By E. R. BANKES, M.A., F.E.S.

HAVE much pleasure in recording the addition to the British list of this obscure but interesting little Butalis, which I was fortunate enough to meet with near Weymouth in the end of June, 1886. Not long previously Mr. C. W. Dale happened to mention that some years ago he had

taken B. variella in that locality, whereupon, although he had no doubt about the identity of the species, I determined to investigate the matter, for I knew that neither Erica cinerea, nor Calluna vulgaris, upon which we find the larva of B. variella in the Isle of Purbeck, grew in the neighbourhood. Accordingly, towards the end of June, I went down, accompanied by Mr. Dale, to search for the insect, and was fortunate in meeting with specimens of a Butalis, which struck me at once as being very different from the typical B. variella, and which have since been identified by Mr. H. T. Stainton as B. siccella, Zeller.

This species is described by Professor Zeller in the "Linnæa Entomologica," x. 257, and it may be interesting to quote the remarks he there makes about it, as compared with the closely allied *B. variella*.

"Although very variable, this species appears to be specifically distinguished from *variella* by the anal tuft of the male, which is stouter, and has the appearance of being cut off straight behind ('den stärkern, hinten grade abgeschnittenen Afterbusch'). The more obtuse form of the fore-wings, and the blackish upper surface of the abdomen, must also be considered as affording additional points of distinction.

"Siccella is, as a rule, smaller than variella, yet, especially in the female sex, it does attain to the size of the smallest specimens of the latter

"Fore-wings shorter than in variella, and, owing to the greater density of the fringes, appearing less sharply pointed; the ground-colour darker, yellowish-brown, the white scales being sparingly scattered over the surface: the quantity of these scales varies greatly, but does not cause the ground-colour to appear paler: these scales accumulate at the apex, and here generally form a whitish spot—sometimes, however, they are entirely absent.

"The fold is black; beyond the middle lies a white dot composed of a few scales; between this and the base there is generally another dot, variable in size, and sometimes larger than the former, At the extremity of the fold there are only scattered white scales. which do not form a spot.

Von Heinemann, in his well known work, incorrectly considers B. siccella as only a variety of B. variella, but Snellen, writing at a later date, keeps them separate, and the differences, which become apparent from a comparison of the larvæ, prove beyond all doubt that they are totally distinct species—a fact previously rendered more than probable by the differences between the perfect insects themselves. B. siccella (alar. exp., $3\frac{1}{2}$ "— $4\frac{1}{2}$ ") may be distinguished from B. variella (alar. exp., $4\frac{1}{2}$ "—5") by its smaller size, shorther and blunter wings, stouter and darker abdomen, and

by its uniformly darker colour. All the specimens I have taken are very dark, and have fewer white scales and light markings than any *variella* I have ever met with; they vary but slightly, whereas in *B. variella* there is every possible variety, from very pale grey down to nearly black.

The habits of the two insects seem to be precisely similar, as they both skip along with short jerky flights over the scant herbage or bare sand in the hot sunshine; and I can corroborate the statement of Professor Zeller as to the fondness of B. siccella for frequenting flowers in the sunshine, as I found them extremely partial to Hypocharis radicata, off the blossoms of which they could be boxed with a little dexterity. At the time that I first met with B. siccella it struck me that Thymus serpyllum might very likely be the foodplant of the larva, and this surmise has since been shewn to have been correct, as far as it went. anxious, if possible, to prove that Von Heinemann's doubt as to the claim of B. siccella to specific rank was quite unfounded, I made an expedition down to Weymouth on May 5th, 1887, and visited the locality, where I had in the previous year captured the insect, with the special object of discovering the larva. By dint of perseverance my efforts were at length crowned with success, for, after some time, I discovered unmistakable Butalis larvæ (which I knew could belong to no other species except B. siccella) living in long silken tubes attached to half-buried stems of Thymus serpyllum and Lotus corniculatus, both of which plants shewed evident signs of having been freely eaten by the larvæ. Those feeding on trefoil were the easiest to detect, as the hollowed-out leaves turn quite white, and are very conspicuous; whereas the thyme leaves, when eaten, only become brown. I had also pretty good evidence that they occasionally turn their attention to other plants, such as Plantago lanceolata, as I found their tubes attached to several partially hollowed-out leaves.

The following description of the larva was taken on May 7th:—Length about $4\frac{1}{2}$ lines. Head horny, polished, brownish-black; plate on 2nd segment dark brown, and polished. Body very long,

thin, and cylindrical, dull reddish-purple, with the spaces between most of the segments shewing paler, and of a pinkish hue, but greenish-white between the first 4 segments: no dorsal or subdorsal lines or spots, but there is one paler pinkish stripe along each side in the region of the spiracles. Anal segment with a rather small, horny, polished, brownish-black plate: ventral surface, and pro-legs, reddish-pink; anterior legs black, and highly polished.

The larvæ live on the surface of, and below, the sand in very long silken tubes coated with sand, and attached to half-buried stems of *Thymus serpyllum* and *Lotus corniculatus*, upon which they feed.

I was unable to discover the position of the pupa, but it seems probable that it is enclosed in a rather long cocoon just below the surface of the sand, as in the case of *B. variella*.

The perfect insects emerged from July 3rd to 12th, 1887.

In order to obtain some larvæ of *B. variella* for the purpose of comparison with the above, I visited the locality for the species on May 16th, 1887, and secured a good supply of them. These larvæ were first discovered by the Rev. C. R. Digby at Studland in April, 1883, living on the surface of, and below, the sand in very long silken tubes coated with sand, and attached to half-buried twigs of *Calluna vulgaris* and *Erica cinerea*, upon which they feed; and, as no notes on them have yet been published, with Mr. Digby's permission I append a description taken on May 17th, from which I hope that the chief points in which they differ from the larvæ of *B. siccella* will be clearly shewn:—

Length, 5—6 lines. The narrow, pointed, and much flattened head is black, horny, and highly polished; it is retractile into the 2nd segment, which is much broader, and covered by a horny, polished, dark brown plate. Body very long, thin, and cylindrical, dull purplish-brown, with no dorsal or subdorsal lines or spots, and not showing paler between the segments; there is a single stripe, rather lighter in colour than the body, along each side in the region of the spiracles. Anal segment shining dirty yellowish-brown,

with no darker plate; ventral surface, and prolegs, dirty brownish-yellow; anterior legs black and polished.

Unfortunately, the larvæ of *B. siccella*, like those of *variella*, seem to go on feeding for an almost interminable length of time, and are exceedingly difficult to rear; as, in spite of every possible care and attention, I only succeeded in breeding four moths from a large number of larvæ, and Mr. W. H. B. Fletcher had no better result from the batch of larvæ that I sent him.

I am much indebted to Mr. H. T. Stainton for his kind help in identifying this species, and in sending me the above extract from Zeller's "Linnæa Entomologica," and my best thanks are due to the Rev. C. R. Digby for kindly giving me a translation of the same.

The Rectory, Corfe Castle, February 18th, 1888.





Rooks.

By Mr. H. J. MOULE.



I' all the 'ologies none takes most people's fancy so much as ornithology. The varied modes of life, the sprightliness, the perfect form, the lovely colours, the ubiquity of birds are charms only partly shared by other orders of animated creatures. Yet these orders, in their degree, excel

the vegetable and mineral kingdoms in attractiveness for most minds. But, much as we are, for the greater part, drawn to ornithology in fancy, it is a difficult study to go into thoroughly. What a fund of patient endurance in keen observation—and, to put that faculty in practice, what a world of leisure—do we require. It is but one here and there who, with the best will in the world, can carry it forward to a good result. Therefore it seems not amiss to throw into the common stock any fragments of bird lore which may occur to the mind or memory; even when the contribution is so short and so triflng as mine must certainly be.

I would say a word about rooks. There are many things worth study in their ways. No one, I suppose, since Gilbert White, has more carefully watched birds' habits than Jeffries. What he says about rooks is very valuable. I refer to Chap. xv. of "Wild Life in a Southern County." He there speaks of the vast, innumerably vast, winter trysts of rooks, of their daily foraging journeys from

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their roosting places, of the regular armies going forth each in its own regular route, leaving companies at regular spots as they proceed, and regularly picking up those companies as regularly on the evening return flight. Then he tries to explain how all this arose. Rooks, he considers, are slaves to tradition.

Now, in the part of the South of England of which he writes many great throws of timber have taken place, destroying or disturbing various rookeries. The winter trysting wood is one which has not had much fall of timber in it. This immunity, Jeffries thinks, has led to its choice as the rooks' national gathering place—their folk-moot. But they forget not the old sites of the destroyed rookeries. The descendants of their former denizens stop at those sites, respectively, to feed. Moreover, in spite of timber throws, it is in that line of country that there are still the most trees for spring nesting. This, too, draws particular rooks to those particular districts for winter foraging.

Again, Jeffries thinks that the lines of feeding grounds are lines of country where the first clearing for cultivation took place in very early days, and where, therefore, feeding would then be especially good. So tradition keeps certain rooks to certain ancestral grounds of theirs. Now, this is most ingenious and extremely likely to be generally true. But it is not true without any exception. It is my object to speak of an exception. Years ago I lived in Scotland near the winter rendezvous of a countless host of rooks. The roosting place was in a particular part of a large wood. That part was far older than the rest, consisting greatly of ancient gnarled beeches. It seems to me to be the senior wood of the neighbourhood; where all the woods, apart from coppices, were pretty modern, apparently.

Thus Jeffries' opinion as to choice of tryst was confirmed in the case in question. But what of the morning scattering and evening gathering of the rooks? Well, as to one army, which in its tens of thousands came to the wood from the east, Jeffries again was seemingly right. Thereaway is the valley of the Kirkcudbrightshire Dee. And that valley presents likelihoods of the above

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mentioned traditional attractions for various cohorts of that vast agmen. The same of a smaller host which, I think, hailed from the valley of the Fleet, northwards. But a third body of rooks came from the west. Now, less than a mile west lies the sea-Wigtown Bay, several miles wide. My friend, the then headkeeper, was a Wigtownshire man. In his boyhood, as he told me, he used to watch the rooks going to sea from the Shire, as Wigtownshire is called there in Galloway. Whither they went he could not imagine. In after life he got his keepership in the stewartry of Kirkcudbright, east of Wigtown Bay. There he saw his old friends the Wigtownshire rooks, or their descendants, arriving and going to their crowded roosts in one of his own coverts. This over sea flight puts Jeffries' theories altogether out of court as far as this special case is concerned. Let no one say that the sea has encroached—that Wigtown Bay in prehistoric rook-zeons was dry land with rookery trees and feeding grounds, which caused their still followed route. I am quite sure that any geologist would say no to this on looking at the neighbouring Nowhere in Scotland, I take it, can you see clearer marks of the ice age. The great moraine, the pierres moutonnés, the scratches on rocks, the millions of ice boulders, the boulder clay locally called till, are all to be seen there as clearly as in Switzerland. Ever since the break up of the ice age the features of the country have been unchanged there, I take it. Only there, as everywhere, slow rain denudation has gone on, and this, of course, has silted up the sea. When the rooks began their maritime flight, Wigtown Bay must have flowed beneath their company deeper than it does at this day.

In the case in question—I argue about no other—in this case it seems to me that nothing can have attracted them but simply what follows. In remote times Wigtownshire was, as far as I could judge, likely to be without timber woods. Those old beeches of which I spoke, standing on a hill well seen from Wigtownshire, would then constitute a wood, which, although small, was a considerable one for those times, and very conspicuous. As the

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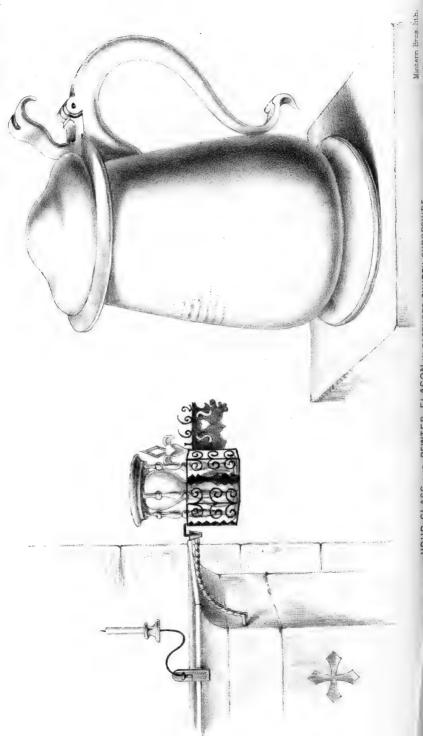
Wigtownshire rooks multiplied, finding no Wigtownshire wood large enough for their increased winter requirements, they betook themselves to the far seen Stewartry beeches. But this by the way.

My object has been to describe a remarkable exception to a rule, the general truth of which I am very far from venturing to dispute.

Let me close with a question. Has the gregarious flight of birds ever been really explained? In some instances we can, doubtless, easily understand that they follow a leader. Of course it is so in family flocks, as of long-tailed tits. There clearly the parents lead, the young ones follow. It looks like it too in a flock of wild geese. There seems a leader who always leads. But when you look at a flock of rooks, or buntings, or sparrows, it seems to me that now one, now another, is in front. It is difficult to feel quite sure of leadership among them. But it is altogether impossible to believe in it, at least speaking for myself, as regards a cloud of starlings. When they are dashing about at inconceivable speed, for some inconceivable purpose, often with an extended front, no individual starling in front of his fellows, no cry of command, no conceivable reason for their all in their hundreds at the very same instant rushing off at a sharp angle from their course, it seems to me that I am looking at a very puzzling bird phenomenon. Therefore, as I said, I close with the question—has the gregarious flight of birds ever been really explained?







HOUR-GLASS AND PEWTER FLAGON IN EASTHOPE CHURCH, SHROPSHIRE.



Ancient Hour Glass and Stand in Easthope Parish Church,

NEAR MUCH WENLOCK, SHROPSHIRE.

By the Rev. O. P. CAMBRIDGE, M.A.

(Read January 27th, 1888.)



N Vol. III. of our "Proceedings," p. 34 (published in 1879), I described and figured the curious old hour glass and stand still existing in the parish church at Bloxworth, noting also all the instances I could collect of such stands or glasses, or remains of them, still to be found in England.

These were by no means numerous, and in no case were both stand and glass still in existence. During last winter, however, I received information of both glass and stand still existing in the parish church of Easthope, near Much Wenlock, in Shropshire, and through the kindness of the rector, the Rev. Silas Crosse, and his son, I am able to give you a description and to show you to-day a sketch of this curious ornament.

We have no clue to the exact date of the hour glass in Bloxworth Church beyond the fleur-de-lys with which the stand is ornamented, and which I am told points to its being Jacobean. The glass and stand, however, in Easthope Church has its date (1662) worked in an iron plate attached to the stand; the fleur-de-

lys also appears again here; it is probable, therefore, that the dates of both are not far from identical. The stand in Easthope Church is a very handsome one. It is of wrought iron scroll-work, round, and measuring four inches in height and six inches in breadth, the height of the glass being eight inches. To the middle (in front) is attached, projecting at right angles, an iron plate bearing the date at the top in free figures (1662). The plate is elegantly cut on the front and lower margins, representing the sections of Gothic mouldings. In the centre is a heart-shaped perforation, with a perforated S-shaped marking on each side; and at the point where the date-bearing plate unites with the stand is a large fleur-de-lys. The frame in which the sand-glass is contained is of wood, and evidently of elegant construction; it is, however, I am told, much injured by worms and dry-rot. The stand and glass are suspended from the pulpit by a strong, twisted iron bent bracket arm.

Mr. Crosse also sent me a drawing of an old pewter tankard, still in use in Easthope Church as a flagon at celebrations of Holy Communion. On it is the following inscription:—"Thos. Shinton, rector; Wm. Corfield, churchwarden. Anno 1730."

Since the above was written one of our members (Rev. James Cross) has kindly communicated to me a note on this subject, taken from an old work, "Archæologia, vol. I., Soc. of Antiquaries, London, 1770," and entitled "Churchwardens' Accounts of St. Helen's, Abington, Berkshire," in which the following entry appears:—

"Anno M.D. x. GI. (1591), 34 Eliz.: Payde for an houre glass "for the pulpitt 0s. 4d." A note is added—"This is the earliest "record I have met with of hour glass for pulpit."

I have also recently received from Mr. T. B. Groves a cutting from the St. James' Gazette of May 27th, 1887 (quoting the "Quiver" magazine), from which it appears that hour glasses or their stands, or remains of them, once existed, or still exist, in the following churches—not noted in my paper, above mentioned:—
"All Saints' Church, Newcastle-on-Tyne;" St. Dunstan's Church, Fleet Street, London; St. Alban's Church, Wood Street; Brixton

Church, Suffolk; Wolvercot, Oxon; Northmoor, Oxon; Hurst Church, Berkshire; Compton Bassett Church, Wilts; Cliffe Church, Kent; Oxford Church, Kent; *Leigh Church (qy. county); Keyingham Church, near Hull; Puxton Church, Somerset; Odell Church, Bedfordshire; and Hammoon Church, Dorset. From an inventory of items in All Saints' Church, Newcastle-upon-Tyne, it seems that a half-hour glass once existed there, as well as one which would run the whole hour. The frame of the glass in St. Dunstan's Church, Fleet Street, appears to have been of silver, and to have been not so very long ago melted down and made into two staff-heads for the parish beadles, a barbarous utilization of an ancient relic scarcely worthy of the end of the Nineteenth Century.

NOTE ON A GLASS AND STAND IN HOLWELL CHURCH.

The parish church of Holwell, in the Vale of Blackmoor, which was restored about two years ago, contains a glass and stand. The stand, which is fixed in the masonry of the arch close to the pulpit, is of iron, and quite plain. It is mentioned in Hutchins' "History of Dorset" in the following words:—"At the entrance, near the pulpit is the stand for an hour-glass." Prior to the restoration of the church the stand was empty. At the restoration a glass, which was found in the house of a parishioner, was placed in the stand. This glass, which is a half-hour glass, is cracked, and is enclosed in a dark wooden frame. There is nothing to prove that it belonged originally to this or any other church, although perhaps its resemblance to glasses contained in churches elsewhere might lead to that conclusion.

M. G. STUART.

^{*} Nine Parishes (in various counties) named Leigh, and 13 other Leighs with affixes or prefixes.





The Construction of a Aaturalist's Calendar for Porsetshire.

By MORTON G. STUART, Esq., M.A., F.G.S.



HE suggestion offered to us by the British Association on the advisability of collecting information on the periodic flowering of plants, the annual return and departure of migratory birds, and the appearance of certain insects, together with other natural phenomena, presents a wide and fertile

field of work, and should result, after the lapse of some years, in some really scientific information regarding the county of Dorset if only we can find individuals patient and willing enough to undertake the collection of facts. In a previous paper I have alluded to the currently received impression that a Field Club is a rather carefully organised picknicking society, and that after the lapse of some years the available sites will all have become exhausted, so that the Society will die out from the creeping on of mere old age. This prospect, however, it is not well for us to entertain, and by endeavouring to place our work on a sounder basis we may hope to counteract it.

The kind of information to which I now refer—viz., the periodical flowering of plants and appearances of birds and insects—which is likely in the end to furnish us with some valuable information

connected with the county and with some generalizations drawn from its position and its physical geography, is just the kind which we can most easily grapple with. We have our members scattered over the whole county, many of them resident through the greater part of the year, and most of them during the course of the year in contact with the phenomena on which we want accurate knowledge.

As an example of what may be done in this direction I found some time ago a calendar which was kept by my father whilst he was Rector of Houghton, six miles from Blandford. The position of Houghton is a curious one. It is a small old world sort of village situated in a deep valley running east and west ending in a coombe at its western end where the chalk formation rises into the high plateau above Milton and Bulbarrow. Here in this valley the average annual amount of sunshine must be greatly reduced, for the sides are so steep that in mid-winter the sun seems scarce to reach the houses at all, whilst the number of springs which rise all along the bottom of the valley near the base of the chalk, forming the headwater of the Winterborne, occasion so much fog and dampness that the place feels often cold and chilly, whilst in the adjoining valley and surrounding country the air may be warm and pleasant. From such a spot the facts to which I refer, compared with those derived from other localities, might offer some interesting suggestions.

The calendar, to which I refer, was kept at the parish of Houghton between 1836 and 1851, a period of 15 years, and in it dates were entered on 44 different subjects in all, but as several of these were almost artificial we may exclude them from our consideration. I have made an extract of eleven of the more important phenomena on which observations were recorded during the years in question, though, in many instances, observations are omitted in various years, as would naturally occur to any observer. You will see by studying this calendar, which I have placed on the table, that the observations refer to just those phenomena which the lovers of the country and country life would be certain to

observe and note down without the requirements of any special scientific knowledge. They refer to the appearances of the first primrose in spring, the first apricot and peach blossoms, the earliest appearance of the swallow, cuckoo, and nightingale, and so on.

The results of these observations confined to one parish cannot naturally be of much value except to the observer or his neighbours. From it we may fix the limits in the arrival of the swallow, for instance, which are 18 days deduced from 13 recorded observations, or of the cuckoo—14 days in 15 observations—of the nightingale—21 days in 11 observations, and so on for the other phenomena recorded, but beyond this he cannot learn much.

By comparison, however, generalisations of various kinds might be effected. For instance, and it is here the value of system I hope to explain to you lies, a printed calendar derived from observations recorded over 10 years from a spot in a distant county gives for the three phenomena mentioned above a smaller limitviz., 15 as against 18 days for the arrival of the swallow, 12 as against 14 days for the arrival of the cuckoo, and 14 as against 21 for the arrival of the nightingale. But with these data we cannot establish any inference that the position of the village and the circumstances of its surroundings produce exceptional conditions which cause the movement of birds to vary more than elsewhere. Our facts are not sufficient—they are not sufficiently numerous; they relate only to the migration of a few species, and are only collected at one spot and not over a large area, and, therefore, no deductions of any value can be made from them. What we require is a systematic series of observations made at various places scattered over the county and dealing with a variety of subjects, and extending finally over a considerable period of years. How, then, should a Naturalist's Calendar be constructed for Dorset, and of what should it consist? This is the question before us. Ere we answer, we may find out what has already been done in this direction by others, and, believing that imitation is the sincerest form of flattery, take, perhaps, a lesson from them. I have with me-from the transactions of the Hertfordshire Naturalist's Society,

vol. iv.--"A Naturalist's Calendar for the Northern Border of Hertfordshire," constructed by H. G. Fordham, F.G.S. In the preparatory note Mr. Fordham says it represent the results of observations from 1877-1886, and forms a calendar for the northern border of Hertfordshire and extreme southerly portion of Cambridgeshire. From it one result seems to indicate the earlier southern movement of migrants from the North of Hertfordshire struck for the whole county, which must be the result of numerous observations taken over the whole of it, and with this average the dates taken at the particular spot on the northern border of the county are compared. Finally, the locality, area over which the observations are taken, elevation above the sea, geology, natural features, and rainfall are noted down from subsequent reference The observations extend to 46 phenomena and comparison. —comprising the singing, pairing, and nesting of birds, the arrival and departure of migrants-and the flowering of various plants and trees. The earliest and latest dates during the 10 years are entered and a mean is struck between them. The comparison of this mean for the particular spot with that of the whole county gives frequently very interesting results. The Royal Meteorological Society of London have already done much in this direction. series of printed schedules have been drawn out under their auspices containing a list of phenomena to be observed, comprising 79 plants, 11 insects, 20 birds, and finally the first appearance of frog spawn. Each schedule is to be filled in as far as possible and returned month by month signed by the observer. How long this has been in operation or what results have been achieved I am not at present aware.

For the construction of such a calendar for the county our method of procedure would be a simple one. It would consist of the drawing out and printing of schedules suitable to our requirements which should be issued to members and friends who would be willing to undertake the task of observation and filling them in. They should then be returned to head-quarters, there the statistics thus furnished should be tabulated, and the results eventually published in our "Proceedings." This would, of course, entail a large quantity of labour and correspondence on the secretary or other functionary whose office it was to collect and digest the mass of facts submitted to him, and whose residence might become a central bureau of information for the county. This, however, is all rather visionary. The interest which would arise from the calendar would be very general. As soon as a mean could be struck for the county each locality by comparison of its own dates with that of the county would arrive at some definite conclusions as to the fact of its early or late seasons, and the causes which to some extent worked to produce that result.

Finally, to make our calendar complete we require an accurate series of returns of annual rainfall to be made at six or eight localities well distributed over the surface of the county, by which the effects of the varied physical features of the district, and relative position of sea and land may be noticed in the increase or diminution in the amount of rain.

Dorsetshire is essentially a naturalist's county. It possesses an exceptionally rich flora and avifauna, for the published description of which we are indebted to the labours of our President. Geologically its sedimentary deposits form a multum in parvo of the English secondary and tertiary beds. Its physical features are no less varied and suggestive. The broad back bone of the white chalk runs through the county from west to east, forming a ridge of high open downs rising to the height of 800 feet above the sea, and standing like a wall in the steep escarpment which looks northwards over the low ground of the Vale of Blackmoor and Wardour. On either side of this cretaceous backbone we have, roughly speaking, two belts of low ground-one the heavy clay districts of the Vale above mentioned, the other the sandy and gravelly country around Poole, Bournemouth, and Wareham. Finally, the Island of Purbeck, itself cut off by a high chalk ridge from the rest of the world, forms a separate area of its own. The influence of this peculiar configuration of the land surface, and the relative position of the different districts resulting from it to the sea, and the warm and moisture-laden breezes which come from it. must make themselves felt with varying effect throughout the county. The distribution of animals and plants and their migration from one area to another is an aspect of natural history to which increasing attention is being paid since the time when Mr. Alfred Russell Wallace gave a stimulus to the study by his famous essay on the "Distribution of Animals," which was given to the public about the year 1874, and on "Island Life," which appeared some years later. As a contribution to this subject in our own area the joint flora of the counties of Dorset and Somerset, which has been promised us by the President and the Rev. G. Murray, of Shapwick Rectory, will doubtless contain much suggestive matter for reflection on the migration and limitation of plants, and will be hailed with interest by botanists. Meanwhile we may all of us render help in the construction of the naturalist's calendar for the county of the characters I have described, and it is for this reason I have undertaken to lay the matter before you.





Aotes on the History of Ford Abbey

And of the Families who have Possessed it since the Dissolution of the Monasteries.

By J. S. UDAL, of the Inner Temple, F.R. Hist. Soc.

ORD ABBEY, beautifully situated in the valley of the Axe, which divides it from Somerset, is in the parish of Thorncombe, a parish which until the year 1842 was comprised in the county of Devon, when, for the greater convenience of county business, it was by Act of Parliament

transferred to Dorsetshire.* Consequently the two earlier editions of our county historian, Hutchins, contain no mention of the place, but in the last one (the publication of which commenced in 1861) appears a very beautiful engraving of the abbey taken from a south-west point of view. The materials upon which the account

^{*} It is a curious instance of the mutability even of counties in these days, that it is proposed in the scheme of the Boundary Commissioners, who came to prepare the way for the new Local Government Bill, that the parish of Thorncombe should now be transferred to Somerset! I am sure that Dorset—and the Dorset Field Club in particular—can ill afford such a loss as the removal from its borders of the finest monastic building in the West of England would be to the county. In the interests of Dorset \(\mathre{E} \) cheology let us hope that such a recommendation will not be acted upon.

Proc. Derset N. H. & . 1. F. Gub. Vel. II. 1888.

FORDE ABBEY.



of the abbey is there composed were largely taken from Mrs. Maria Allen's History of Ford Abbey, which had been published about four years after the change of Ford Abbey from Devon to Dorset, supplemented by Pulman's Book of the Axe (Ed. 1854), who again was largely indebted for his information to the same source. To these authorities I have added that of Dr. J. H. Pring, who published his Memoirs of Thomas Chard (which contains some very fine plates of Abbot Chard's part of the building—the Tudor part—) in 1864, having had in turn the advantage of consulting both these writers. Both Mrs. Allen's and Dr. Pring's works are, I believe, now scarce.

My present paper therefore cannot but be in the main a mere compilation from these authorities, and as such I must disclaim any credit in the way of literary merit for the following hurried and somewhat disjointed notes—notes which, however they may satisfy the interest for the time being of our Society when in the field, yet are now subjected to a much more severe test when criticized by those members in the silent pages of our "Proceedings."

Romantic as is the scenery amidst which Ford Abbey stands, still more romantic were the circumstances which gave rise to the foundation of this famous Abbey. Baldwin de Brionne in Normandy married Albreda, niece of William the Conqueror, and by her had a son Richard and a daughter Adeliza or Adelicia. To this Richard was given by the king the barony of Okehampton, in the county of Devon, and in his old age he became as devout as in his youth he had been valiant. He gave his lands at Brightley, within the honour of Okehampton, to an abbey of the Cistercian order, which he founded there in 1133, and procured Gilbert, Abbot of Waverley, in Surrey, to send a convent of his own monks there, and raised the necessary buildings for them. Richard himself died and was buried there; and, leaving no issue, left the whole of his estates to his sister Adeliza, amongst which was the manor of Thorncombe. The monks resided five years at Brightley, but owing to great want and the barrenness of the place determined to return once more to their former house of Waverley. On their return, passing by the manor of Thorncombe, their pitiable demeanour was observed by the Viscountess Adeliza, who ascertained from them the cause of their return. Touched with grief and compunction that the pious intentions of her brother Richard should have so miscarried, she, with words of solemn piety, placed her manor of Ford at their disposal, then, as now, fruitful and well wooded, with the silvery Axe stretching away to the sea.

Here, then, at Ford—as it was then called, but afterwards Westford—the monks lived for six years, during which time convenient buildings were raised for them in the place intended for the monastery then called Hartescath or Hartes-bath, but now Ford. The present structure was finished in 1148—the 12th year of King Stephen. The lady Adeliza, who had died a few years previously, was buried in the new monastery, whither also were removed the bones of her brother Richard, the founder of the Abbey. tected by the families of d'Averinges or d'Avranches and the Courtenays, who were patrons of the abbey for centuries and ofttimes were buried there, the pious monks of Ford continued to elect in turn their long list of abbots until the final decrees of 1539 put an end to the monastery itself. Monuments were erected in honour of various members of the Courtenay family, but no account remains of what became of them on the dissolution. There is now at Ford Abbey, on the chimneypiece in the saloon, a small marble tablet or shield having dolphins as supporters—one of the badges of the Courtenays-evidently monumental-the tradition being that it formed part of a monument either in the church or chapel of Ford.

In the monastery thus formed in 1148 and dedicated to the Virgin Mary, the community consisted of an abbot and twelve monks, the order being Cistercian and very strict in its rules. Among the more famous of the early abbots of Ford was Baldwin, surnamed Devonius from his county, who within a year of his admission in the abbey at Ford was chosen abbot. Henry II.

appointed him Bishop of Worcester in 1181, and in 1185 he was installed Archbishop and Primate of all England. He crowned Richard I. at Westminster in 1189, and used every means in his power to influence that monarch in promoting the crusades, and, following him to the east, he died at Ptolemais in Phœnicia about 1191, and was buried at Tyre. Neither space nor time will admit of our noticing any other of the abbots, some four or five-and-twenty in number, until we come to Thomas Chard, who succeeded to the abbacy in 1521, and was the last abbot of this noted monastery. He was born in the parish of Awliscombe, near Honiton, and was educated at St. Bernard's (now St. John's) College, Oxford. He enjoyed a multiplicity of preferments, being suffragan bishop of his diocese, Bishop Oldham of Exeter having selected him for his coadjutor in the episcopal office by the title of Solubria. collated to various livings, and was, moreover, Vicar of Thorncombe, which office he retained (after the dissolution of the monasteries) until his death in 1544. But with all his pluralities Thomas Chard could have had no selfish motives, when we see that to him we are indebted for giving us what is probably the best preserved specimen of monastic architecture in the kingdom. Whether it was that, foreseeing the storm that was impending over the religious houses of his country he sought to avoid it by making his own as magnificent as possible, we know not, but no sooner was he established as abbot than he began to set his house in order. He beautified and adorned the abbey; the splendid hall and cloister remaining perfect to this day. The principal portion of the magnificent south front was also his work. Below the battlement of the beautiful front entrance tower is the following inscription in Gothic characters:-

> An'o D'ni millesimo quinqesimo vic^{mo} octa^o A D'no factum est Thoma Chard abb.

Dr. Chard would appear to have been a man of great intellectual attainments, and was a munificent benefactor to various public institutions. St. John's College, Oxford (then called St. Bernard's College), where he had been educated—to which he made extensive

reparations and additions, in memory of which his initials were painted on the glass of several of the windows, particularly in the large middle window, on the south side of the tower—and the Hospital of St. Margaret, at Honiton, may be mentioned as two of the places which shared his liberality.

In 1536 the smaller monasteries had been suppressed, and the storm long impending now burst upon the larger houses, and Ford Abbey was not to be exempted from the common ruin. It was on the 8th March, 1539, that Thomas Chard, with feelings doubtless ill in accord with the wording of the document (which is set out in full in Mrs. Allen's History of Ford Abbey) was induced to sign the surrender of his Abbey to Henry VIII. The revenues at the time of the dissolution were valued at £373 10s. 6d., and the Court of Augmentation granted pensions to the abbot and convent of the "house of Ford" for their lives amounting in the whole to considerably less than half that amount, of which the late abbot's share was £80 a year, with certain perquisites, a poor compensation truly for the loss of his dignity and position as head of such an establishment as Ford Abbey must have been at that period, and to the splendours of which he had so largely contributed.

Dr. Chard, however, still held the vicarage of Thorncombe until his death in 1544, so that he survived the dissolution of his monastery by about four years only. It is an ill wind indeed that blows nobody any good, and it must have been some gratification at all events to the dispossessed abbot to feel that all his care in adorning and beautifying the abbey was not lost, for on the 28th October, 1539, the king granted the buildings, site, and precincts of the Abbey of Ford, and certain lands, on lease to Richard Pollard, Esq., and on the 23rd June, 1540, he granted it to him in fee. It is not a little singular that, notwithstanding the mutations of time and the various hands through which the property has passed, the fields and meadows are known to this day by the same names as are recited in this very deed of conveyance.

The manor of Thorncombe, in the parish of which Ford Abbey

is situated, was granted in 1544 to John Earl of Oxford, and passed in the reign of Queen Elizabeth by purchase to the Bragges of Sadborow, in whose family it has continued to the present time; the vicarage of Thorncombe—all that was left at the last to the ex-abbot—being now held by a member of the same family.

Richard Pollard, who was subsequently knighted, was succeeded by his son Sir John, who sold Ford Abbey to his cousin, Sir Amias Poulett, of Hinton St. George. Sir Amias Poulett, grandfather of the purchaser, had been a benefactor to the abbey and convent, and this may account for his arms being cut in stone on a shield outside the cloister built by Thomas Chard. Sir Amias, the purchaser of Ford Abbey, and his father, Sir Hugh, had been appointed by Dr. Chard head steward of the abbey, which, in some measure, may have been the reason for preserving the buildings and granting the site of the abbey to the aforesaid Richard Pollard, who was brother-in-law to Sir Hugh. Sir Amias was the direct ancestor of the present owner of Hinton, and it was to his custody that the unfortunate Mary Queen of Scots was committed. Amias Poulett sold Ford Abbey to William Rosewell, Esq., who was Solicitor-General to Queen Elizabeth from 1558 to 1565, and was succeeded in the inheritance of Ford by his son Henry, who was knighted after the coronation of James I.

We now come to a more interesting period as regards the mansion itself. Hitherto we have found no mention of its buildings or of any alterations; nothing, in fact, that gives us an idea of its state after the dissolution beyond the present portions of the front built by Thomas Chard and still so perfect. In the year 1649 Sir Henry Rosewell conveyed Ford Abbey to Edmund Prideaux, Esq., who was Solicitor-General in 1648, and became Attorney-General to the Protector in 1649 and Postmaster-General for all inland letters. "Being thus wealthy, he set about improving and adorning his house; and for that purpose employed the celebrated Inigo Jones, who was at that time attempting to introduce the Grecian style of architecture into the country, but did not live to see his designs

here completed, as he died Anno 1654. We can trace the alterations very distinctly, and it is fortunate that the splendid front was not more mutilated. The square windows to the state rooms in the western wing of the building are most incongruous with those of the hall adjoining, which are in the Tudor style. There can hardly, however, be a doubt that the house was very indifferent in accommodation for a family of note; and Mr. Prideaux must have spent enormous sums in the alterations, for the internal decorations are of the most magnificent description. Ford Abbey was saved from the destruction with which so many other mansions were visited during the civil wars and commonwealth, owing to the fortunate circumstance of its being the residence of Mr. Attorney-General Prideaux. He did not, however, live long after finishing his house to enjoy it, the date of the completion of the grand staircase being 1658, and he dying 8th August, 1659, having been made a Baronet by Cromwell the year before. He was buried in the chapel adjoining the house."* He was succeeded in his estates by his son, Edmund Prideaux, Esq. (Cromwell's titles were not admitted after the Restoration), who married in his father's lifetime (1655) Amy Fraunceis, co-heiress of John Fraunceis, of Combe Florey, co. Somerset. Edmund Prideaux was a highly educated gentleman, having for his tutor the celebrated divine, Archbishop Tillotson.

In 1680 the Duke of Monmouth paid him a visit at Ford Abbey, where he was hospitably entertained. In the following year he was elected M.P. for Taunton, and in 1685, being suspected of treason, was committed to the Tower, from which he was only released upon payment of £15,000 to Judge Jeffreys, to whom the king had "given him as a present." Upon the accession of William III., Mr. Prideaux presented a petition to Parliament, which Mrs. Allen gives in full, praying to be reimbursed from the estate of Jeffreys the £15,000 he had paid the Chancellor for the Royal pardon, but the application was not successful.

Mr. Prideaux, who died intestate in 1702, had one son,

^{*} Mrs. Allen's History of Ford Abbey.

Fraunceis, who died young, and three daughters, one of whom died young; another died without issue; and the third, Margaret, married her cousin, Francis Gwyn, Esq., of Llansannor, co. Glamorgan. Francis Gwyn thus inherited Ford Abbey. He was Under-Secretary of State temp. Charles II., and Secretary of the Treasury temp. James II., and afterwards Secretary at War to Queen Anne to the period of her death, and was by Her Majesty presented with the magnificent tapestry from the cartoons of Raphael, which now adorns the saloon. For this tapestry Mrs. Allen asserts as an undoubted fact that Catherine of Russia offered £30,000 to his son, the second Francis Gwyn, but without success. The tradition is that these tapestries were intended for the King of Spain, from the celebrated looms of Arras, but were taken from a Spanish galleon by one of our ships of war during the reign of Queen Anne.

The subjects are five in number, and are noted for their richness and perfect colouring, said to be superior in this latter respect to those in the Vatican.

- (i.) The Sacrifice at Lystra.
- (ii.) Our Saviour's Charge to Peter.
- (iii.) St. Peter and St. John at the Beautiful Gate of the Temple.
- (iv.) Ananias and Sapphira (part).
- (v.) The Miraculous Draught of Fishes.

Besides the above cartoons there are four panels of Gobelin tapestry in beautiful preservation containing the following subjects:—

- (i.) Scipio, Africanus, and Hasdrubal.
- (ii.) A Roman Gladiator and Lion.
- (iii.) Cyrus, king of Persia, with vessels full of silver and gold for rebuilding Temple at Jerusalem.
- (iv.) The Temple in Progress.

There is also a piece of fine and quaint old tapestry representing a Welsh wedding, which was formerly in Queen Anne's room, but now (at the time of the visit of the Field Club) placed in one of the corridors.

Mr. Secretary Gwyn died in 1734 and was buried at Ford

Abbey. He was succeeded by his eldest son, Edmund Prideaux Gwyn, Esq., M.P. for Wells, who, dying intestate and unmarried. his estates devolved upon his next brother, Francis Gwyn, who was also M.P. for Wells. He died without issue in 1777, and under his will his estates passed to his kinsman, John Fraunceis, of Combe Florey, on condition of his taking the name of Gwyn, which was done in 1780. He died in 1789, and was succeeded by his eldest son, John Fraunceis, who also took the name of Gwyn on his father's death. He was a highly educated man, an elegant classical scholar, fond of country sports, and a great benefactor to all around Having parted with his own paternal estate * he spent very large sums of money in the internal decorations of Ford Abbey, and to him Mrs. Allen says is due the praise for making it the elegant mansion which we know. During a tour of Mr. Gwyn on the continent Ford Abbey was occupied for three years (from December, 1815) by the philosopher, Jeremy Bentham, who thence issued some of his celebrated works. Upon Mr. Gwyn's death in 1846 Ford Abbey was sold together with the furniture, and was purchased by George F. W. Miles, Esq., who in turn (about the year 1864) sold it to Mrs. Bertram Evans, whose eldest son, W. H. Evans, Esq., resides in it at the present time, and who, we may venture to express a hope, may at length prove the inapplicability of the "common observation" to which Dr. Pring in his Memoirs of Thomas Chard says that Ford Abbey has proved no exception— "That either through sale, through default of issue, or, in many

^{*} To the Helyars, I think, who, in turn, sold it to Sir Wroth Lethbridge, Bart., of Sandhill Park, Bishop's Lydeard, the present owner. There is a very handsome heraldic achievement in stone of the Fraunceis family in the gate-house at Combe Florey, and also several monuments of the same family lying on the floor of the church (which contains, as many of the churches of that part of Somerset do, some very interesting old oak benchends, probably 16th century work, and an old oak poor-box of the 17th century), which formerly must have been of considerable heraldic interest; but the brasses seem now to have disappeared from the matrices, the monuments themselves being mostly pewed over! May I call the attention of the Somerset Archwological Society to this?

instances, through greater or more grievous disasters, the receivers of the plunder of the Church have rarely retained it in possession for any lengthened period."

Having now sketched the history of the abbey and of the families who have held it since the dissolution of the monasteries to the present time, I would refer those of our readers who desire further information and fuller details as to the present condition of the abbey, both inside and out, and of its beautiful surroundings, to the later pages of Mrs. Allen's most interesting little book; for being, as she was, a connection of the late Mr. Fraunceis Gwyn, and, moreover, one who had lived for some years in the abbey itself, no one could have known better than she did the details of everything comprised within its walls, and no one, as we may judge from her *History*, could have been better able than herself to give an account of it.

N.B.—It has been suggested that Thomas Chard, the abbot of Ford Abbey, and Thomas Chard, the Suffragan Bishop, were two different persons, but I think that an inspection of a remarkable panel in the frieze over the cloisters (beautifully engraved in Dr. Pring's Memoirs of Thomas Chard) conclusively prove that Dr. Chard united in his own person the two offices. The letters T. C., with the abbot's and bishop's crosiers, will be observed in the small corner shields; whilst in the larger one, which occupies the centre, occurs the stag's head (cabossed) and crosier; the name "Tho. Chard" on a scroll entwined round a crosier; and above these as a crowning feature of the whole the abbot's cap, surmounted by the bishop's mitre. It is certainly somewhat strange, as Mrs. Allen observes, that neither the arms of the abbey nor of Dr. Chard appear on any part of the building. The common seal of the abbey (which is engraved on p. 26 of Dr. Pring's book) bore on it the Virgin Mary seated with the infant Jesus on her knee; below her stands the abbot holding his crosier, and on each side of him monks on their knees in adoration. Two shields are charged with the arms of Courtenay, and either Beauchampe (as Mrs. Allen says)

or *Beaumont* (as Dr. Pring says) barry of six, vairy argent and gules*, with the legend:—

S' Commune Monasterii Beate De Forda.

The arms of the family of Chard (according to Edmondson) are, quarterly: or and gules, over all a label of five points azure. These arms are, as I have said, nowhere to be found blazoned at Ford Abbey, and it is very probable that Thomas Chard may have adopted as his badge the stag's head embossed, with a crosier issuing from its mouth, which we find on the before-mentioned panel; which cognizance may have been taken from the old name of the site of the abbey—Hartes-bath (balneum cervorum).

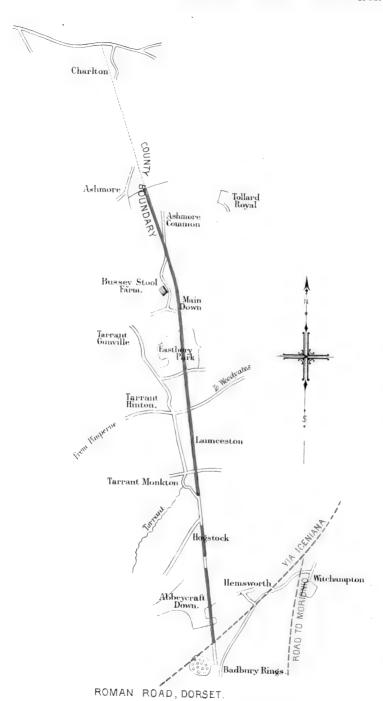
J. S. UDAL.

The Manor House, Symondsbury. August, 1887.



^{*} On referring to Edmondson (Complete Body of Heraldry 1780) I find that there is no coat of a Beauchampe or Beauchamp answering to the description of the one here given on the shield, but there is one attributed to Beaumont of Devonshire which does; so that in all probability Dr. Pring is right.





Mintern Bros.lith.



Aote on a Roman Road from Badbury to the Miltshire Boundary near Ashmore.

By J. C. MANSEL-PLEYDELL, Esq., F.L.S., F.G.S.

NTIL the autumn of 1886, the number of Roman roads of any importance known to lie within the county boundary were the Via Iceniana which joins London with Exeter, commencing at a road from Dorchester which divides into two branches near Frampton, one in the direction of Crewkerne,

the other in the direction of Ilchester. There are also two vicinal roads, one from Dorchester to Preston, the other from near Badbury Camp to Hamworthy, on the Poole estuary; both are in connection with the Via Iceniana. We are indebted to the Rev. Crossby Saunders for the discovery of a sixth road, whose construction, form, and elevation is not inferior to the Via Iceniana. The removal of flint from a field at Tarrant Hinton by the district road surveyor was the cause of the discovery. Mr. Saunders kindly invited me, as President of the Field Club, to examine the material as it lay exposed. I availed myself of the invitation, and under the guidance of his son, Mr. W. C. Saunders, I found myself in the presence of a slightly elevated artificial structure of various sized flints, which continued through two adjoining fields in a south-westerly direction. General Pitt-Rivers, who accompanied me on a subsequent visit, was equally assured of its Roman

character, and agreed to divide the labours of a provisional survey with me, taking Tarrant Hinton for our starting point in two opposite directions. On his way home to Rushmore General Pitt-Rivers traced it through Eastbury Park, and shortly after to the Wiltshire boundary. The compass points of the road, so far as we had traced it, gave the clue to the rest, for it occurred to me that the high unbroken down of Abbey Craft, which commands a view both of Tarrant Hinton and Badbury Camp, and to which the line pointed, would be a likely place to find it; but in this I was disappointed, for there was not the slightest indication of it among the ridges and sulcations with which the down is scarred. Mr. W. Drake, jun., the tenant of Abbey Craft, whom I opportunely met, told me that his labourers often complained of a difficult piece of ploughing through some of his fields, and which played havoc with his horse tackle. He conducted me to the boundary hedge of his farm, and, proceeding in the direction of Badbury, we soon fell in with the road, which was similar to the Tarrant Hinton section in every respect, and were able to trace it through three cultivated fields to the southern boundary of his farm. As it was then getting late I was obliged to give up further search that day. In the course of the following week I succeeded in tracing the road over a piece of rough ground adjoining Abbey Craft to a copse on the north side of the Witchampton and Rushton road. I was unsuccessful at Hogstock and "The Cliff," and did not recover it again until I arrived at Monkton, where I found it in two fields on the east side of the river, in the occupation of Mr. Waters. Subsequently Mr. W. C. Saunders traced it to Tarrant Hinton, through Launceston. With the exception of a few insignificant gaps the line of road had now been traced from the Wiltshire boundary to Hemsworth. Nothing more, therefore, remained to be done than to trace it to Badbury Camp, which I felt sure would turn out to be its terminus.

With this object in view, I mounted my horse on the 16th of December. The day commenced rather unpropitiously, for the morning was wet and boisterous, and the horse my servant was

riding fell lame. Sending back for another horse, a couple of miles was a serious delay when the days were short; on arriving at Crauford Bridge we found the Stour Valley flooded, and a stretch of road for about a quarter of a mile covered with water, which came up higher than the horses' girths. Through this we waded safely, although occasionally my horse shewed its dislike to this unusual medium of progress, and at one time I did not know how it would end. On arriving at Hemsworth I soon fell in with a fresh piece of the road, still in the direction of Badury, and traced it onwards through several cultivated fields. I was foiled at a small plantation, but recovered the road again in a piece of gorse on the crown of the hill of the adjoining down. Here I discovered for the first time that the direction of the road was not straight to the Camp, but slightly on the east side of it. A gateway by which the field adjoining the down is entered stands on the centre of the road, which it crosses diagonally and joins the Via Iceniana near the north side of the Camp.

It is remarkable the unrecovered portions of the road are only where the surface has been undisturbed, no traces of it remain—the result, probably, of the disintegrating effects of frost and rain which have been going on for the last 2,000 years; the portions, however, protected by underwood and furze have resisted these atmospheric ravages, which enabled us to trace the road through the copse near Hogstock.

During my absence from England I received much valuable assistance from Dr. T. Wake Smart, the only survivor of that energetic band, who nearly half-a-century ago, fired by the ardour of the late Mr. Miles, one of the earliest explorers of barrows, have done so much to elucidate the unwritten history of our county, the result of whose labours are embodied in the pages of "Ancient Dorset," the latest and most important literary work of Mr. C. Warne, and to which Dr. T. Wake Smart's introduction to the primeval ethnology of Dorset is a valuable appendix. The New Ordnance Map shows the road from Ashmore to Launceston only, but not the section on to Badbury. The

members of the Dorset Natural History and Antiquarian Field Club may be congratulated on being the first to record the discovery of so important a Roman highway, having Badbury for its terminus, the Poole Estuary, and the Via Iceniana for its confluents.

It seems incredible that a road traversing so many miles of the county, and known to the farm labourer as the "Roman Road," should have remained so long unnoticed. Its existence seems to have been concealed beyond the limits of the farms through which it passed.

The first record of it, as far as I can ascertain, is by the pen of the late Rev. J. H. Austen in the Journal of the Archæological Institute in a paper on "Some Vestiges of Roman Occupation in Dorset." Vol. iv., p. 59, 1867.

"No. 3. This way comes up Donhead Hollow on the north side of the Wiltshire hills from the Vale of Wardour. On the top of the hill it is clearly recognizable by the side of the modern road, which after a short distance traverses it, but after passing Phelps' cottage turnpike gate it follows its independent course in a southerly direction, crosses Woodley Down, where flints have been frequently drawn from it for road material, and, passing through a portion of the Chace called the Wiltshire Copses, enters Dorset, crosses the recently-cultivated Ashmore fields, enters again the Chace Woods, and may be traced a mile further, its direction passing near Barton Field, the supposed Tarentum is towards Broadford (Bradford) Down, and tracing back its direction northward it will be seen to be towards Bath." It will be observed Mr. Austen's examination of the road terminated a mile south of Ashmore, and no further. The Via Iceniana crosses Bradford Down about one and a-half mile north-east of Badbury Camp. Mr. Austen's information is highly valuable, especially with regard to the Wiltshire extension, which he traces to "Donhead Hollow," in the direction of Castle Rings.

The junction of the three important roads—the Via Iceniana, the road connecting Badbury with the sea at Hamworthy, and the newly discovered road—indicates the value of the Camp in the estimation of the Romans, and it will be a matter for consideration whether it has not a better claim to be the Vindogladia of Iter xv. of the Antoninus' Itinerary rather than Gussage Cowdown, to which Stukely and others refer it. There has been a long standing controversy upon this Iter, which commenced before Stukely's time, arising from the discrepancy between the stated and actual distances between Old Sarum and Dorchester. The Iter makes the distance 20 Roman miles, whereas it is 40 miles as the crow flies or 43½ Roman miles by the Via Iceniana, the route supposed to be referred to in the Iter. Its course is nearly in a straight line from Old Sarum to Badbury Camp, where it makes a bend, crosses the Stour near the church at Shapwick, and on to Dorchester, through Almer, Winterbourne Kingston, and Tolpiddle. Stukely was the first to suggest the omission of a station between Vindogladia and Dorchester through the carelessness of the copyist, and proposed the intercalation of Ibernum, a place referred to by the Anonymous Geographer of Ravenna in his list of towns and strongholds of Britain, and coming closely after Vindogladia. the names in his list do not always follow each other in relative order, and some important names are altogether omitted, no dependence can be placed on him as an authority, and leaves Vindogladia's geographical relation to Ibernum uncertain. Although some eminent antiquaries agree with Stukely in the possible omission of a station, and that one has accidentally dropped out from the road-book, many differ from him in determining Stukely places it at Bere Regis, Mr. the site of Ibernum. Warne at Winterbourne Kingston, and Mr. Barnes at Iwerne, which philologically seems to connect itself with the Ravenna The village of Iwerne lies at the base of geographer's name. Hambledon and Hod hills, both originally British camps, and commanded the fords of the Stour, which were of some strategical importance. If Mr. Barnes' opinion that Ibernum is the modern Iwerne is adopted, we are driven to the conclusion that it had no relation with the Via Iceniana, to which the Iter is supposed to refer. If, again, Dr. Stukely's opinion is adopted it requires not only.

the intercalation of a station but the prolongation of the distance between Old Sarum and Gussage Cowdown by four miles. Doctor T. Wake Smart's view (see vol. iv. "Proceedings of the Dorset Natural History and Antiquarian Field Club," p. 122) commends itself to me in preference to Dr. Stukely's; for it merely requires the addition of the letter X as initials to the numerals attached to ' Vindogladia' and 'Durnovaria' of the Iter, by which the xii. of the one and the viii. become xxii. and xviii., which approximates the true measurement, if Vindogladia is removed from Gussage Cowdown to Badbury Camp. Messrs, Parthey and Pindar* make it clear that the distances given in the Iter must be received as rough estimates only, and that the letters m. p. m. signify mila plus. The distance of Badbury Camp from Old Sarum is or minus. 21½ miles by the Ordnance map, and from Dorchester 18¾, the total number 401 English miles, or 431 Roman miles. These numbers very nearly accord with Dr. Smart's amended figures.

The commanding position of Badbury Camp, overlooking an extensive range of country, must have attracted the Romans, and was more likely to have been selected by them for a station in preference to the less conspicuous Gussage earthworks, which might have formed one of the many halting places or Cold harbours which were attached to the Roman roads between the stations, and to which I attribute the Kingston Down and Milborne earthworks. It is probable when Gussage Cowdown has been examined by General Pitt-Rivers the earthworks there will be found to be pre Roman. Dr. Wake Smart's theory that the letter x has fallen out of the text of Iter xv. is remarkably supported by a similar error in Iter x., where there is a discrepancy of 49 miles between the aggregate and detailed distances, and which can be equalised by the substitution of the letter l for i, by which ci. becomes cl., which represents the proper distance in Roman miles. By the substitution of the letter I for L in the first instance the figures will nearly assimilate, and both will be 150. In each case we can easily conceive that the letters have been wrongly

^{*} Journal of Arch. Institute 1880, p. 9.

transcribed by the copyist in the one omitting the letter X, in the other substituting I for L.

I leave this very interesting subject for our next meeting, and in the meanwhile invite the co-operation of the antiquarian members of the club in following up the line of the road to its northern destination, which, as I have already hinted, points directly to Bath.

The interest taken in the discovery of the road is very hopeful.

The above paper led to a considerable amount of discussion :—

The Secretary said that the Roman road was thought by the president to have some connection with the road which traversed the Mendip Hills from the sea at Weston-super-Mare to their most easterly termination. This latter road, however, pointed to Old Sarum as its destination, and was considered by competent $\operatorname{arch_{mologists}}$ to have been connected by another road with the Hampshire coast opposite the Isle of Wight, where there was an emporium from which the mineral produce of the Mendip Hills might be shipped off to the Continent. The Roman road along the Mendip Hills passed in its course many traces of Roman civilization, evidenced by the camps and fortified positions, the lead mines and smelting furnaces with their heaps of cinders and ashes and pigs of lead which have been occasionally found.

Prebendary Scarth, in the course of a short address on the subject given at the evening meeting at Chard on July 12th, said the Roman roads of Britain had never worked out properly. It was not so difficult as might be supposed, since these roads had certain fixed points of destination through the country. They had the itinera; at York. Lincoln, Carlisle, Manchester, Chester, Gloucester, and in the South of England generally are points where these roads meet, and they might be traced at intervals. The lines of roads would not be continuous, but still they could be traced, and in doing so they would get much aid from the histories of Britain, in which they could trace pretty accurately the routes taken by the armies in former times. From the examination of these roads one thing became evident—the Roman engineers must have had a clear geographical knowledge, and must have been well acquainted with geometry. Engineering in those days was a subject as carefully gone into by the Roman governors of this country as in modern times. He would urge local societies such as their own to take up this matter, and he thought they might be very successful in their investigations.

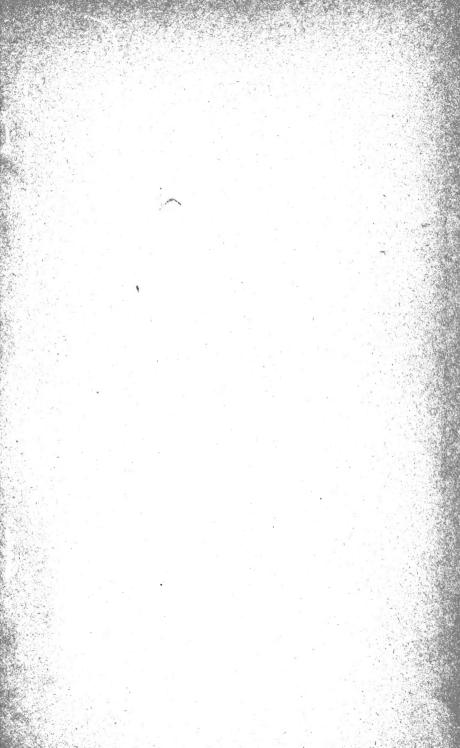
Porset Natural History and Antiquarian Hield Club.

Vol. IX.

CORRIGENDA.

p. 27, l. 8—Erase "not."

p. 80, l. 18—For "Hutchins may show" read "Hutchins' map shows."





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